Institutional Support for Academic Staff to Adopt Virtual Learning Environments (VLEs) in Saudi Arabian Universities

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Abstract

Higher education institutions have increasingly invested in integrating Information and Communication Technology (ICT) into learning and teaching activities. However, the success of e-learning initiatives is influenced by academic staff's beliefs and attitudes towards e-learning quality, concerns about new teaching situations, increased workload, insufficient technical and pedagogical skills and availability of institutional support.

This mixed methods study aims to investigate the perceptions of academic staff in five public universities in Saudi Arabia (n=518) about the actual and desired institutional support that is provided or should be provided by their institutions to motivate them to adopt Virtual Learning Environments (VLEs). Additionally, it aims to compare that actual and desired institutional support. The study also seeks to determine whether there are statistical significant differences in academic staff's assessment of actual and desired institutional support according to their university, faculty, gender, main purpose of using VLEs and attitude toward participation in e-learning.

In terms of actual institutional support, academic staff reported that their universities *rarely* provide the required institutional support (mean=2.29). They rated all seven sections of institutional support (i.e. supportive institutional practices, technical support, pedagogical support, technical training, pedagogical training, flexibility of training programmes, and institutional incentives) as *rarely* provided with means ranging between 2.06 and 2.59. In addition, the study revealed statistically significant differences in academic staff's assessment of actual instuitional support according to their university, faculty, gender, main purpose and attitude toward participation in e-learning.

In terms of desired institutional support, academic staff confirmed the importance of institutional support (mean=4.41). The results indicated that the

seven sections of support are *highly desired* with means ranging between 4.28 and 4.60. Also, the results indicated statistically significant differences in academic staff's assessment of desired institutional support according to their university, faculty, main purpose and attitude toward participation in e-learning.

In terms of differences between actual and desired institutional support, paired t-test results revealed statistical significant differences between the actual and desired institutional support. According to academic staff, the widest gap between actual and desired support is in section five, "pedagogical training" (mean=2.06 and mean=4.45). On the other hand, they reported the smallest gap in section four, "technical training" (mean=2.59 and mean=4.42).

The main contribution of this study is to provide a model based on the study findings; thus, an "Institutional Support Model" was proposed to assist universities to provide the required support for their academic staff. The model suggests forty-four items of support integrated into seven main areas of support: Institutional Support Practices (ten items), Technical Support (six items), Pedagogical Support (six items), Technical Training (six items), Pedagogical Training (six items), Flexibility of Training Programmes (five items) and Institutional Incentives (five items). In addition, many customised models can be generated from the quantitative results according to academic staff's characteristics.

Keywords: Institutional Support, Supportive Institutional Practices, Technical Support, Pedagogical Support, Technical Training, Pedagogical Training, Training Flexibility, Institutional Incentives, Virtual Learning Environments (VLEs).

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In the name of Allah, the most gracious most merciful
"Praise be to Allah, the Cherisher and Sustainer of the worlds"

And peace and blessings be upon Prophet Muhammad who said:
"**He has not thanked Allah who has not thanked people"**

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Dedication

This thesis is dedicated to my father, mother, brothers, sisters, my wife, Awatif, and my boys Fahad and Muhammad, without whose constant support and help I could not have completed it.

Declaration

I declare that the work contained in this thesis is my own work and has not been submitted for any other awards or degree.

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1.1. Introduction

In recent years higher education institutions have increasingly invested in integrating Information and Communication Technology (ICT) into their daily activities (Youssef & Dahmani, 2008; Steven-Long & Crowell, 2010). The figures on funding give clear indicators that ICT spending is a global trend in both developed and developing countries (Moller, Foshay & Huett, 2008). ICT integration is driven by its potential to enable institutions to face challenges related with massification, diversification, marketisation and internationalisation of higher education (Hong & Songan, 2011). These challenges have emerged from the growing demand for higher education (Zusman, 2005), diversity in students' demographic characteristics (Beerkens-Soo & Vossensteyn, 2009), a competitive higher education environment and funding issues (Starck & Zadeh, 2013) and the tendency of institutions to contribute to the global academic environment (Altbach & Knight, 2007).

ICT's borderless nature and its efficiency in information storage, management, dissemination, and sharing have the ability to provide effective improvements to the administrative process (Altbach, Reisberg & Rumbley, 2009; EDUCAUSE, 2013; Kirkup & Kirkwood, 2005; Kubler & Sayers, 2010), expanding access to learning to address the growing demand for higher education (Baily & Bekhradnia, 2008; Palloff & Pratt, 2010), and developing partnerships with the public and private sectors to provide training and professional development programmes (Rudestam & Schoenholts-Read, 2010). Furthermore, ICT facilitates the provision of a wide range of degree opportunities for employees (e.g. interdisciplinary learning) and learners who are unable to enrol on traditional learning courses (Ala-Mutka, Punieand & Redecker, 2008; Naidu, 2006).

In addition, higher education institutions adopt ICT due to the widely held assumptions that they enhance the quality and effectiveness of learning and teaching (Dool & Kirschner, 2003). ICT in higher education is introduced as an ideal medium for providing educational solutions that address different learning theories, i.e. behaviourism, cognitivism and constructivism (Conole, Dyke, Oliver

& Seale, 2004) and different learning styles (Fee, 2009), providing active, flexible and collaborative pedagogies (Laurillard, 2008), creating learner-centred learning environments (Dabbagh, 2000; Keramati, Afshari & Kamrani, 2011; Steven-Long & Crowell, 2010), enhancing learner-content, learner-learner and learner-teacher interactions (Augustsson, 2010; Beldarrain, 2006; Hirumi, 2002) through integrated applications (e.g. Virtual Learning environments, VLEs) (Dillenbourg , Schneider & Synteta , 2002; Finegold & Cooke, 2006; JISC, 2006), and promoting on-campus courses by providing blended learning courses (Garrison & Kanuka, 2004; Rudestam & Schoenlts-Read, 2010).

However, in spite of the aforementioned potential for ICT to reinforce learning, the empirical studies have not revealed conclusive evidence regarding the significant effectiveness of ICT compared to traditional learning environments (Bernard et al., 2004; Russell, 1999; Schmid, Bernard, Borokhovski, Tamim, Abrami, Surkes, Wade and Woods, 2014; Underwood, 2004).

Investigating the potential factors that could lead to the limitations in ICT achieving desirable changes in learning quality has become a common research area in the field (Cukusic, Alfirevic, Granic & Garaca, 2010; Gayol, 2010; Phipps & Merisoitis, 1999). One of the most important factors which minimises the impact of ICT initiatives on learning outcomes is focusing on the technical rather than the pedagogical aspects (Schmid *et al.*, 2009). Another related reason for the restriction of the impact of ICT on learning outcomes is that initiatives are met with a noticeable reluctance by academic staff (Al-Senaidi, Lin & Poirot, 2009; Butler & Sellbom 2002; Naidu, 2004; Olcott & Wright, 1995; Schneckenberg, 2010), or they simply comply with the university's pressure to become involved in e-learning by uploading the educational materials in text-based forms in VLEs (Mioduser, Nachmias, Lahav & Oren 2000; Sharpe, Benfield & Francis, 2006). The literature reports that academic staff do not reconceptualise their pedagogical, social and managerial roles in e-learning environments (Baran, Corriea & Thompson, 2011; Oliver, 2001) but tend to replicate their teaching practices without developing effective pedagogies for these emerging teaching settings (Lai, 2011; Lockyer, Patterson & Harper, 2001; Reeves, 2003).

Due to the central role of academic staff in the success of e-learning initiatives (Gannon-Cook, Ley, Crawford & Warner, 2009), the factors that influence their effective adoption have been extensively investigated. These factors are generally divided into three main categorises: Firstly, the academic staff-related factors which include their beliefs and attitudes towards e-learning quality (Pajo & Wallace, 2001), concerns about new teaching situations (Orr, Williams & Pennington, 2009), the increased workload (Gannon-Cook et al., 2009; Wolcott, 1998), the absence of face to face interaction with learners (Bolliger & Wasilik, 2009), concerns about pedagogical quality of e-learning courses (Bower, 2001; Moskal, Dziuban & Hartman, 2013) and the lack of technical and pedagogical skills (Naidu, 2004). Secondly, innovation-related factors which concern the innovation implementation context or technology characteristics such as the conflict between the institution and academic staff's goals regarding the innovation (Ocak, 2011), perceived ease of use, complexity of the technology, and system quality (DeLone & McLean, 2003; Rogers, 1983; Venkatesh & Davis; 2000). Finally, institution-related factors which include the lack of technical infrastructure, insufficient technical and pedagogical support and training programs (Butler & Selbom, 2002; Schifter, 2000) and absence of appropriate incentive schemes (Hiltz, Kim & Shea, 2007; Newton, 2003; Templeton, 2001).

Studies have concluded that institutional commitment is important in assisting academic staff to raise their readiness level and overcoming the barriers that create resistance (Al-Senaidi et al., 2009; Fein & Logan, 2003; Howell, Saba, Linsay & Williams, 2004; Newton, 2003; Nichols, 2008). More specifically, the success and continuation of e-learning initiatives rely on institutions' ability to evaluate their academic staff's technical, pedagogical and professional needs and provide comprehensive procedures for institutional support to keep pace with the growth of e-learning initiatives (Butler & Selbom, 2002; Fetzner, 2003; Porter, Graham, Spring & Welch, 2014; Zuvi-Butorac & Nebic, 2009).

1.2. The Research Problem

E-learning initiatives create considerable challenges for universities (Alenezi, 2014; Arabasz & Baker; 2003; DiStefano & Witt, 2010). These challenges, which

are related to institutional, technical and pedagogical issues, influence the academic staff's participation in such initiatives (Howell et al., 2004; Zhou, 2007). Thus, e-learning success relies on the institution's readiness and its ability to overcome these challenges (Browne, Hewitt, Jenkins, Voce, Walker & Yip, 2011; Maguire, 2005). The institution's commitment to supporting their academic staff is a fundamental element in increasing their satisfaction level (Bolliger & Wasilik, 2009; Fetzner, 2003; Hassanzadeh, Kannani & Elahi, 2012; Naidu; 2004), minimising the gap between policy and practices (Gunn, 2013), promoting the trust between them and their institution (Fein & Logan, 2003) and assisting them to address the sources of the resistance to change, such as concerns about the new teaching situations (Orr *et al.*, 2009), and improving the required technical and pedagogical skills and knowledge learning environments (Pajo & Wallace, 2001; Roberts, 2008; Wilson, 2001).

The literature reports that institutional support to motivate academic staff to adopt e-learning is provided in various areas: supportive institutional practices, technical support, pedagogical support, technical training, pedagogical training, training programme flexibility and institutional incentives (DiStefano & Witt, 2010; Masoumi & Lindstrom, 2012; Panda & Mishra, 2007).

Institutions' behaviour during the planning, development and implementation of initiatives plays a crucial role in shaping the academic staff's responses to these initiatives (Al-Saleh, 2005a; Browne et al., 2010). For example, e-learning plans and strategies should be characterised by clarity and stability (Keengwe, Kidd & Blankson, 2009; DiStefano & Witt, 2010), and the academic staff should be represented during the different phases of the initiative (Bower, 2001; Hardaker & Singh, 2011).

Taylor and McQuiggan (2008) state that teaching in e-learning environments requires the academic staff to improve their technical and pedagogical proficiency. In respect of the technical issues, the institution is required to develop a comprehensive framework to provide technical support in order to minimise the academic staff's concerns about performing technical tasks, rather than providing the content (Mason & Rennie; 2010; Orr *et al.*, 2009; Tempelton, 2001), promoting a reliable technical infrastructure (Butler & Sellbom, 2002;

Pirani, 2003), running a help desk to provide immediate services and consultations, adopting a user-friendly virtual learning environment (Arabasz, Pirani & Fawcett, 2003; Fetzner, 2003; Porter et al., 2014) and units for multimedia production (Wolcott, 1998; Moser, 2007), and ensuring continuing access for academic staff and students to the university network (Panda & Mishra, 2007) and various forms of training programmes to increase the ICT efficiency.

According to Howell et al. (2004), e-learning is mainly considered as a pedagogical rather than a technological issue. Thus, the academic staff's pedagogical knowledge is an important factor in promoting effective e-learning courses (Ellis & Calvo, 2007; Watson, 2007), reconceptualising their pedagogical, social and managerial roles (Coppola, Hiltz & Rolter, 2001; Goodyear et al., 2001; Liu, Bonk, Magjuka, Lee & Su, 2005), adapting new teaching practices, utilising approved pedagogical methods and creating active online learning communities (Bennett, Agostinho, Lockyer & Harper, 2006; Park & Moser, 2008). Pedagogical support provides assistance for academic staff in designing, developing and delivering e-learning courses through their cooperation with instructional designers during the e-course teaching stages (O'Quinn & Michael, 2002; Pirani, 2003), providing course authoring applications (Arabasz & Baker, 2003; Bennett et al., 2006) and providing training activities that aim to increase the pedagogical efficiency level to contribute towards raising courses' quality and investing in the technology to address the course objectives (Lion & Stark, 2010; Moser, 2007).

Despite the importance of the aforementioned support, it might be insufficient to ensure a high level of academic staff's participation in e-learning initiatives (Howell *et al*., 2004), where designing, developing and delivering e-learning courses are considered time-consuming activities (Bower, 2001; Cavanaugh, 2005; Tomei, 2006). Consequently, this additional workload which is added to the daily responsibilities of the academic staff, such as face to face teaching, researching and meetings, leads to increased reluctance (Keengwe *et al*., 2009) , especially when this emergent workload is not accompanied by clear procedures regarding the workload assignment (Hiltz et al., 2007; Wolff, 2010) and developing incentive schemes such as financial compensation and the

recognition of the academic staff's efforts (Al-Saleh, 2000; Lion & Stark, 2010; Wolcott, 2003).

Institutional support is a vital factor in achieving e-learning success and essential to facilitate its adoption (Al-Busaidi & Al-Shihi, 2012; Baran et al., 2011; Graham, Woodfield & Harrison, 2013; McGill, Klobas & Renzi, 2014). Thus, this study aims to investigate the academic staff's perceptions of both the actual and desired institutional support (i.e. that which exists and that which should be provided) by their universities to motivate them to adopt Virtual Learning Environments (VLEs), as a common form to deliver e-learning (Dunn, 2003; Weaver, Spratt & Nair, 2008). Moreover, the study will compare the actual and the desired institutional support, as well as determining whether there are significant differences in academic staff's perceptions of institutional support according to: university, faculty, gender, purpose of using the VLE and attitude towards e-learning.

1.3. The Study's Significance

The current study is considered to be an extension of my Master's thesis which was conducted between 2008 and 2009 in a university in Saudi Arabia and aimed to assess academic staff's skills in using the VLE (WebCT). The study findings revealed a noticeable lack of technical and pedagogical skills. During the data collection phases, some academic staff members expressed their concerns about institutional support issues. Bates (2009) who ran workshops and seminars in e-learning in three universities in Saudi Arabia in 2009 indicated the low level of institutional support:

> ***"There is almost no professional support base for e-learning at the moment, at least in the three universities I visited. For instance, there are almost no instructional designers in Saudi Arabia – indeed, educational theory or design is not a topic taught in the universities. Bates, 2009"***

However, these concerns were not empirically investigated. Initially, the study derives its importance from institutional support as an essential factor to encourage academic staff to adopt and participate effectively in e-learning initiatives. Overall, it is anticipated that the study's findings will contribute by assisting the decision makers in evaluating and improving the effectiveness of

current and future institutional support schemes in seven areas of support. More specifically, the study:

- Identifies and examines the institutional support programs that are reported in the literature.
- Provides detailed information of academic staff's assessment of the current level of institutional support in seven areas: supportive institutional practices; technical support; pedagogical support; technical training; pedagogical training; training programme flexibility; and institutional incentives in Saudi universities.
- Provides detailed information about the desired institutional support from academic staff's perspective in the seven mentioned areas in Saudi universities.
- Explores and presents best practices in institutional support in Saudi universities.
- Suggests a model for institutional support according to academic staff's responses to desired institutional support items.

Moreover, the comparison between the actual and desired institutional support might help institutions to explore and minimise the gap between the two. Furthermore, the study investigates academic staff's perceptions in different variables such as university, academic discipline (faculty), gender, main purpose of using VLEs and attitude toward participation in e-learning which could allow customised institutional support programmes to address needs of academic staff in each variable and sub-variable.

1.4. The Study Context

The study was carried out in five public, multiple-gender universities in the Kingdom of Saudi Arabia. This section aims to provide a brief description of the study context, with a brief review of the country profile, as well as higher education and the national e-learning initiatives in Saudi Arabia.

Figure 1.1. Saudi Arabia Map

The Kingdom of Saudi Arabia, located in the South-West of the Asian continent, covers nearly 80% of the Arabian Peninsula with a total area of two million km^2 (Figure 1.1). According to the Central Department of Statistics and Information (2014), the total population of Saudi Arabia in 2014 was estimated at nearly 30.8 million (67.2 % of them Saudi nationals).

Saudi Arabia relies on higher education institutions to address the demographic, social and economic challenges (MoHE, 2010). These challenges are related to providing higher education opportunities in a country with high population growth (2.1 %), preparing highly educated and skilled citizens for the workforce, and filling the gap between undergraduate programmes and the available jobs (Al-Mubaraki, 2011; Al-Serehi, 2010). In particular, the higher education institutions play a critical role in achieving the government's five-year plans which are known as Development Plans (Al-Asmari, 2014). According to the Tenth Development Plan (the latest released plan 2015-2019), higher education institutions facilitate the eleventh objective which is "developing human resources, productivity and expanding their options in acquiring knowledge, skills and experience" (Ministry of Economy and Planning, 2014).

With the increasing support of governmental funding for the higher education sector, the Ministry of Higher Education (MoHE, which amalgamated in 2015 with the Ministry of Education under the name of "Ministry of Education") issued initiatives to increase the quality of education and to contribute to creating a society of knowledge (MoHE, 2010). In cooperation with King Fahd University of Petroleum and Minerals (KFUPM), the MoHE released a research initiative called Aafaq (Horizons) to create and implement long-term strategic plans and programs. These programmes aim to expand the opportunities to meet the demand for higher education, ensure quality and enable diverse programs (Aafaq, 2010a; Al-Mulhem, 2013; Al-Asmari, 2014). These plans involve 40 programs which cover eight areas: expanding admission opportunities; enhancing students' and academic and administrative staff's performance; enhancing the quality of courses and programs; promoting research and innovation environments; addressing governance issues; dealing with funding issues; integrating information and communication technology (ICT); and finally infrastructure (Aafaq, 2010b).

Among these strategic programmes, Aafaq released four programs aimed at integrating ICT into higher education: e-learning implementation in higher education institutions; enabling high-speed Internet networks to link institutions; promoting the digital content and knowledge; and establishing virtual universities (Aafaq, 2010c).

To support the implementation of e-learning plans, in 2005 the MoHE established the National Centre for e-Learning and Distance Learning (NCeL) to raise awareness of e-learning, ensure quality of e-learning programmes, support research, develop national standards for designing and developing practices, establish partnerships with national and international organisations, launch and encourage projects and organise training events, workshops and conferences (Al-Malki, 2011; NCeL, 2014; Yamani, 2014).

To align with MoHE plans that aim to integrate ICT in higher education, all public universities in Saudi Arabia established deanships to administrate e-learning activities within the university (Al-Harbi & Drew, 2014; Al-Mulhem, 2013).

1.5. Terms Definition

Based on the related literature, in this study I adopted the following definitions for the key terms:

1.5.1. Institutional support, refers to the procedures and programmes that are followed and provided by the university to encourage academic staff to adopt VLEs. It includes supportive institutional practice, technical and pedagogical support, technical and pedagogical training and institutional incentives.

1.5.2. Actual institutional support, refers to academic staff's perception about the currently (at the time of the study) provided institutional support (i.e. perceived actual support) by their university to motivate them to adopt VLEs.

1.5.3. Desired institutional support, refers to the support that should be provided in the future by the university to encourage academic staff to adopt VLEs.

1.5.4. Institutional support practices, refer to the university's behaviour and practices during the planning and implementation of e-learning initiatives. These practices include clarity and stability of e-learning strategies, clarifying the importance of e-learning in the university's strategic vision, representing academic staff in e-learning initiatives, encouraging institutional discussion during e-learning initiative phases, ensuring the support provided keeps pace with the growth of e-learning programmes, informing academic staff of e-learning education opportunities, identifying the barriers to the use of e-learning, making sure that e-learning initiatives are driven by research findings, highlighting the role of departments in encouraging academic staff to participate in e-learning.

1.5.5. Technical support, refers to procedures and approaches followed by the university to ensure seamless and continuous access to the Virtual Learning Environment (VLE). This support includes providing a reliable technical infrastructure, offering user-friendly VLEs, ensuring continuous access to the VLE for academic staff and students, running a 24/7 help desk to provide technical support, running units for educational multimedia production and offering facilities to encourage participation in e-learning (e.g. tablets, laptops, computers laboratories).

1.5.6. Pedagogical support, refers to procedures and approaches followed by the university to address pedagogical issues and achieve a high level of pedagogical quality for e-learning courses. This support includes facilitating cooperation with instructional designers, providing authoring tools to design e-learning courses and providing prepared pedagogical templates for e-learning courses, running pedagogical consultations units, producing guides to increase courses' pedagogical quality and establishing online communities to share e-learning experiences.

1.5.7. Technical training, refers to training programs and activities which are organised by the university to increase academic staff's technical skills. These include training programs to enhance the use of ICT in teaching, increase course management skills in the VLE, increase course content management skills in the VLE, increase skills in using communication tools in the VLE, increase students' progress tracking skills in the VLE and increase assessment skills in the VLE.

1.5.8. Pedagogical training, refers to training programs and activities which are organised by the university to increase academic staff's pedagogical knowledge and proficiency. These programmes include training programmes to improve instructional design skills, assist academic staff to reconceptualise their role in e-learning environments, enhance interaction through e-learning., increase students' engagement through e-learning, improve learner-centred learning strategies and offer a guide to the best practices in blending face-to-face teaching and e-learning.

1.5.9. Training program flexibility, refers to the degree of diversity and flexibility of training programs. This includes providing training programmes based on accurate needs assessments, diversity of TPs in terms of means (e.g. face-to-face and online), diversity of TPs in terms of form (e.g. one-to-one and team-based), organising TPs on set dates and diversity of TPs in terms of duration (short term/long term).

1.5.10. Institutional incentives, refer to policies and procedures legislated by the university to encourage academic staff to participate in e-learning initiatives. These incentives include developing monetary compensation schemes, adjusting traditional workload credits, appreciating academic staff's participation in e-

learning, taking into account academic staff's efforts in the promotion process and arranging funded travel to attend e-learning events.

1.5.11. Virtual Learning environment (VLE), refers to the e-learning platform (i.e. BlackBoard) utilised in the university under investigation to facilitate authoring, delivering, sharing and storing content, promote online communication and track, assess and report learning progress.

1.5.12. VLE adoption, refers to when academic staff start using the VLE and participate in e-learning (implementation stage according to Rogers, 1983 and Lin and Lin, 2012).

1.6. The Study Objectives and Questions

The present study aims to investigate the perceptions of academic staff in Saudi Arabia about the actual and desired institutional support that is provided or should be provided by their institutions to motivate them to adopt Virtual Learning Environments (VLEs). Additionally, it aims to compare that actual and desired institutional support. The study also seeks to determine whether there are statistically significant differences in academic staff's assessment of actual and desired institutional support according to their university, faculty, gender, main purpose of using VLEs and attitude toward participation in e-learning. In this study, institutional support is divided into seven areas: supportive institutional practices, technical support, pedagogical support, technical training and pedagogical training, training programme flexibility and institutional incentives.

Consistent with the study objectives, the questions are posed as follows:

Objective 1: To investigate the actual institutional support provided by Saudi universities for their academic staff to motivate them to adopt Virtual Learning Environments (VLEs).

Question 1: **From the perceptions of academic staff in Saudi Arabia, to what extent is institutional support provided by their universities to motivate them to adopt VLEs? (Seven sub-questions).**

Q1.1: To what extent are the required supportive institutional practices provided?

Q 1.2: To what extent is the required technical support provided?

Q1.3: To what extent is the required pedagogical support provided?

Q1.4: To what extent is the required technical training provided?

Q1.5: To what extent is the required pedagogical training provided?

Q1.6: To what extent can the provided training programmes be described as flexible?

Q1.7: To what extent are the required institutional incentives provided?

Objective 2: To find out if there are statistically significant differences in academic staff's perceptions about actual institutional support according to: university, faculty, gender, purpose of using the VLE and attitude towards e-learning.

Question 2: Are there statistically significant differences in academic staff's perceptions about actual institutional support according to: university, faculty, gender, purpose of using the VLE and attitude towards e-learning? (Five sub-questions)

Q2.1: Are there statistically significant differences in academic staff's perceptions about actual institutional support according to university?

Q2.2: Are there statistically significant differences in academic staff's perceptions about actual institutional support according to faculty?

Q2.3: Are there statistically significant differences in academic staff's perceptions about actual institutional support according to gender?

Q2.4: Are there statistically significant differences in academic staff's perceptions about actual presence of institutional support according to their main purpose of using the VLE?

Q2.5: Are there statistically significant differences in academic staff's perceptions about actual presence of institutional support according to their attitudes toward e-learning?

Objective 3: To investigate the desired institutional support that should be provided by Saudi universities for their academic staff to motivate them to adopt VLEs.

Question 3: From the perceptions of academic staff in Saudi Arabia, what is the desired institutional support that should be provided by their universities to motivate them to adopt VLEs? (Seven sub-questions)

Question 3.1: What are the desired supportive institutional practices that should be provided?

Question 3.2: What is the desired technical support that should be provided?

Question 3.3: What is the desired pedagogical support that should be provided?

Question 3.4: What is the desired technical training that should be provided?

Question 3.5: What are the desired pedagogical training programmes that should be provided?

Question 3.6: What is the required flexibility of the provided training programme?

Question 3.7: What are the desired incentives that should be provided?

Objective 4: To find out if there are statistically significant differences in academic staff's perceptions about desired institutional support according to: university, faculty, gender, purpose of using the VLE and attitude towards e-learning.

Question 4: Are there statistically significant differences in academic staff's perceptions about desired institutional support according to: university, faculty, gender, purpose of using the VLE and attitude towards e-learning? (Five sub-questions)

Question 4.1: Are there statistically significant differences in academic staff's perceptions about desired institutional support according to university?

Question 4.2: Are there statistically significant differences in academic staff's perceptions about desired institutional support according to faculty?

Question 4.3: Are there statistically significant differences in academic staff's perceptions about desired institutional support according to gender?

Question 4.4: Are there statistically significant differences in academic staff's perceptions about desired institutional support according to their main purpose of using the VLE?

Question 4.5: Are there statistically significant differences in academic staff's perceptions about desired institutional support according to their attitudes toward e-learning?

Objective 5: To find out if there is a gap between the actual and desired institutional support (that which is and that which should be) provided by Saudi universities for their academic staff members to motivate them to adopt VLEs.

Question 5: Are there statistically significant differences between the actual and the desired institutional support (that which is and that which should be provided to motivate the adoption of VLEs in the perception of the academic staff members of Saudi universities? (Seven sub-questions)

Question 5.1 Are there statistically significant differences between the actual and desired supportive institutional practices in Saudi universities?

Question 5.2. Are there statistically significant differences between the actual and desired technical support in Saudi universities?

Question 5.3. Are there statistically significant differences between the actual and desired pedagogical support in Saudi universities?

Question 5.4. Are there statistically significant differences between the actual and desired technical training in Saudi universities?

Question 5.5. Are there statistically significant differences between the actual and desired pedagogical training in Saudi universities?

Question 5.6: Are there statistically significant differences between the actual and desired training programs' flexibility in Saudi universities?

Question 5.7: Are there statistically significant differences between the actual and desired institutional incentives in Saudi universities?

Objective 6: To find out if there are significant differences between the actual and desired institutional support for each sub-variable: university, faculty, gender, purpose of using the VLE and attitude towards e-learning. (Five sub-questions)

Question 6: Are there significant differences between the actual and desired institutional support for each sub-variable: university, faculty, gender, purpose of using the VLE and attitude towards e-learning? (Five sub-questions)

6.1: Are there statistically significant differences between the actual and desired institutional support in each university?

6.2: Are there statistically significant differences between the actual and desired institutional support in each faculty?

6.3: Are there statistically significant differences between the actual and desired institutional support in each gender category?

6.4: Are there statistically significant differences between the actual and desired institutional support in each category of main purpose of using VLE?

6.5: Are there statistically significant differences between the actual and desired institutional support in each category of attitude toward e-learning?

1.7. Structure of the Study

The study is divided into seven chapters. **Chapter One (The Introduction chapter)** introduces the study topic and research problem, briefly highlighting the importance of institutional support and the study's context. Furthermore, the chapter highlights the study's importance and potential contribution, objectives and questions, and the definition of utilised terms.

Chapter Two (The Literature Review chapter) reviews the related literature to form an overview of the field and to develop the instruments to answer the study questions. The chapter consists of five main sections. The first section titled "ICT Impact on Higher Education Institutions" attempts to review challenges facing higher education institutions such as massification, diversification, marketisation and internationalisation and how institutions can utilise ICT to address these challenges. The second section titled "ICT Impact on Teaching" reviews the potential factors that limit the impact of ICT on learning outcomes as well as on academic staff's teaching and how they can address the pedagogical, social and managerial roles in e-learning environments. The third

section titled "ICT Adoption Theories and Models" reviews theories and models that describe the factors that facilitate or hinder academic staff adopting or rejecting innovations. In particular, it reviews the Technology Acceptance Model, TAM, Diffusion of Innovations Theory, DoIT, Unified Theory of Acceptance and Use of Technology, UTAUT, DeLone and McLean's Model of Information Systems Success, D&M Model, Post-Acceptance Model of IS Continuance and Concern Based Adoption Model, CBAM.

The fourth section titled "Institutional Support for Academic Staff" starts with a review of barriers that affect academic staff's participation in e-learning. Then the chapter presents the support that should be provided by institutions (universities) to address pedagogical, technical and professional concerns.

Finally, the fifth section titled "Virtual Learning Environments, VLEs" reviews the definitions of VLE, its features and its impact on some variables such as satisfaction and perceived ease of use.

Chapter Three (the Methodology chapter) provides details about the methodology utilised in the study. The chapter commences by illustrating the study questions and sub-questions. In addition, it explains mixed methods research, designing of quantitative and qualitative instruments, sampling and data collection procedures and the ethical considerations. Finally, the chapter discusses data analysis and data analysis procedures, statistical treatments and validity issues.

Chapter Four (the Quantitative Results) commences with an illustration of the demographic profile of the study's sample population. The chapter includes charts and statistics about the study's sample distribution according to university, faculty, gender, main purpose of using VLE and attitude toward participation in e-learning. Then, it answers each question and sub-question with the aid of tables that include descriptive and inferential statistics, charts and text description. This consists of six main sections: actual institutional support (Question 1), the differences in actual institutional support according to the above variables (Question 2), desired institutional support (Question 3), the differences in desired institutional support according to the above variables, (Question 4) the differences between actual and desired institutional support

(Question 5) the differences between actual and desired institutional support according to the sub-variables (Question 6)

Chapter Five (the Discussion chapter) discusses findings from the previous chapter with an explanation of the results, using interview data to provide contextual explanation and linking the findings with the previous literature. The chapter consists of three main sections. The first section presents the academic staff's perceptions about the actual and the desired institutional support and differences between the two (Questions 1, 3 and 5). The second section focuses on the differences in academic staff's perceptions about the actual and desired institutional support according to different variables (university, faculty, gender, main purpose for using VLE and the attitude toward e-learning) (Questions 2, 4 and 6). The third section presents a proposed model of the institutional support. Finally, **Chapter Six (the Conclusion chapter)** summarises the study's objectives, methodology and its findings. Then, it presents recommendations, the study's contribution and its limitations, and suggests potential areas for further investigation.

Chapter Two : The Literature Review

Chapter Two: The Literature Review

2.0. Introduction

This chapter aims to review the literature with regard to ICT integration in higher education, adoption theories and models, virtual learning environments (VLEs) and the studies that investigated institutional support for academic staff in e-learning environments. In particular, the chapter consists of five main sections; the first section "ICT impact on higher education institutions" reviews issues such as massification, diversification, marketisation and internationalisation of higher education and how ICT can be utilised to cope with these issues. Then, the second section "ICT impact on teaching" reviews how ICT affect teaching practices and academic staff pedagogical, social and managerial roles. The third section " "summarises the common models that explain why and how academic staff reject or adopt ICT such as the Technology Acceptance Model, TAM, Diffusion of Innovations Theory, DoIT, Unified Theory of Acceptance and Use of Technology, UTAUT, The DeLone and McLean Model of Information Systems Success, D&M Model, Post-Acceptance Model of IS Continuance and Concern Based Adoption Model, CBAM. The fourth section "Institutional support for academic staff" reviews studiea related with the challenges and barriers that could cause a threat to e-learning initiative success and sustainability and how institutions provide support recourses to address technical, pedagogical and organisational challenges. Finally, the fifth section "Virtual Learning Environments (VLE)" as an important component in universities strategies to provide effective and fixable learning and teaching environments.

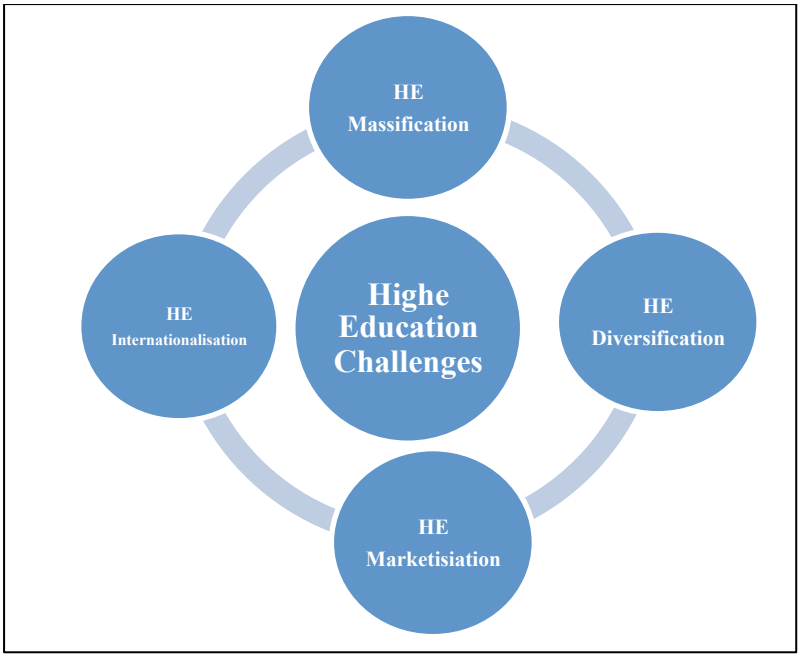
To conduct the literature review, I identified issues and topics that related to with the research questions. Then, I started with the broad topic to find out how ICTs influence higher education institutions' activities (Section One). After that I focused on how ICTs affect teaching activities (Section Two). This helped me to form an overview of teachers' different pedagogical and technical roles needs to teach in ICT-enhanced environments. Then, I moved to innovation adoption theories and models to explore individuals' (i.e. academic staff) behaviours and

concerns when their universities introduce ICTs (Section Three). These studies assisted me to move to review studies that directly related with the present study's topic (i.e. The institutional support). In Section four, I reviewed and specified the barriers that limit academic staff 's participation in e-learning initiatives. Then, the institutional support section reviewed the different areas of support that provided by universities to address academic staff concerns. Finally, as VLEs are considered basic components of providing e-learning in the targeted universities, I preferred to write an independent section (section five) to explore academic staff attitudes toward these platforms, VLE s' features and characteristics which helped me to specify the type of required technical support and training.

2.1. ICT Impact on Higher Education Institutions

Higher Education Institutions (HEIs) throughout the world are facing challenges and common issues that place considerable pressure on them to reshape their strategies in order to address changing social and economic needs (Lai, 2011). This section aims to briefly review issues related to the massification, diversification, marketisation and internationalisation of higher education (Figure 2.1) and how ICT can be utilised to cope with these issues. It should be noted that although these challenges affect higher education globally they vary from country to country according to economic factors, such as the degree to which students contribute toward their tuition fees (Altbach *et al.*, 2009).

Figure 2.1. Higher Education Challenges.



HEIs are facing a growing demand from students to access higher education (Zusman, 2005) and this is expected to continue to present a major challenge for institutions (Universities UK, 2012). This increased demand is driven by social, economic and educational changes (Beerkens-Soo & Vossensteyn, 2009; Schofer & Meyer, 2005). Altbach *et al*. (2009) highlight certain social changes that contribute to this growing demand, such as rapid expansion of the world's population since World War II and movement from rural areas to cities. Additionally, Hong and Songan (2011) refer to higher education as an essential provider of opportunities that facilitates desirable social mobility. Moreover, economic factors play an important role in the quest for higher education, such as competition in the labour market and the current need for highly-skilled personnel (Beerkens-Soo & Vossensteyn, 2009; Universities UK, 2012). Beerkens-Soo and Vossensteyn (2009) refer to the diversity of students' demographic characteristics as another major aspect related to the expanding demand for higher education. Bradwell (2009) states that higher education has witnessed noticeable changes in the types of students they attract (i.e. full-time, residential and pre-employment students). In particular, different categories of

student have emerged such as working, mature, part-time and international students (Beerkens-Soo & Vossensteyn, 2009; Comrie, 2011). Higher education massification aims to expand access and enrolment and has emerged as an approach that defines HEIs' responses to the challenges resulting from students' continuous demographic changes, as well as the global trend of increased demands for higher education (Lee & Healy, 2006; Mohamedbhai, 2008; Universities UK, 2012).

Higher Education diversification is one of the issues associated with enabling the enrolment of a large number of students who vary in terms of demographic characteristics and reasons for enrolment (Beerkens-Soo & Vossensteyn, 2009). Thus, HEIs are required to accomplish this challenge by diversifying their structures and programmes to absorb the student population's heterogeneity (Altbach *et al*., 2009). In this context, different types of institution and programme have emerged, such as profit and non-profit private HEIs, and open and virtual HEIs, to provide different levels of degrees (Altbach *et al*., 2009; Teixeira, Rocha, Biscaia & Cardoso, 2012).

In the Saudi Arabian context the number of students doubled between 2000 and 2013 from 404,094 students to 1,116,230. The Saudi government responded to this increase in demand by establishing 25 public universities, eight private universities, 40 technical colleges and an open electronic university between 1998 and 2011, providing a total of 3,600 programs (MOHE, 2013). Furthermore, the Saudi government runs a sponsorship program, the King Abdullah Foreign Scholarship Program, which sponsors students to pursue undergraduate and postgraduate degrees abroad (Taylor & Al-Basri, 2014).

Marketisation has emerged as a global issue for HEIs (Hemsley-Brown & Oplatka, 2006; Starck & Zadeh, 2013). This has mainly been facilitated by the aforementioned issues of massification and diversification, to promote increased opportunities for new providers of higher education (Shin & Harman 2009), international academic cooperation activities and the rapid development of ICT (Altbach *et al*., 2009). In addition, HEIs in many countries around the world are facing a reduction in governmental funding or else the funding provided is not sufficient to match the demand (Beerkens-Soo & Vossensteyn, 2009; Comrie,

2011; Universities UK, 2012). These factors have encouraged HEIs to improve and revise their strategies in order to enhance their competitive abilities (Starck, Zadeh, 2013). HEIs are striving to widen marketisation activities and create funding resources by adopting approaches to market their programmes, curricula, teaching, research and knowledge-based services (Hong & Songan 2011; Lee & Healy, 2006; Teixeira *et al*., 2013).

The increasingly competitive higher education environment has led HEIs to internationalise their activities (Altbach & Knight, 2007; Bennett & Kane 2009; Shin & Harman, 2009). Higher education has long been affected by international factors (Shin & Harman, 2009), and the internationalisation of higher education has been facilitated considerably by the integrated global economy, evolving ICT and the rise of English as a "lingua franca" (Altbach *et al*., 2009; Teichler, 2008). Higher education internationalisation leads institutions to create strategies to contribute to the global academic environment (Altbach & Knight, 2007; Bennett & Kane 2009). These strategies aim to gain advantages for an institution, such as increasing its international visibility, facilitating worldwide partnership, encouraging global research activities and increasing student and academic staff mobility (Altbach *et al*., 2009; Coryell, Durodoye, Wright, Pate & Nguyen 2010). Transnational Education (TNE) is a visible aspect of higher education internationalisation (Skidmore & Longbottom, 2011) which can be provided by various models: attracting international students, exporting higher education programmes by opening branch campuses, franchising degrees, twinning arrangements that allow students to study in local and overseas universities or by providing distance learning degrees (Altbach & Knight, 2007; Hénard, Diamond & Roseveare, 2012; Universities UK, 2012; Vapa-Tankosic & Carić; 2009).

Again, internationalisation-related issues and strategies vary from country to country (Hénard *et al*., 2012). For example, the recruitment of international students is considered as an important component in ensuring sustained funding for universities (Universities UK, 2014). Thus, the internationalisation of higher education is an important element for institutions' marketing strategies (Nga, 2009).

In the Saudi Arabian context where the government contributes to universities' budgets, internationalisation could be driven by cultural purposes (such as teaching Arabic language and Islamic sciences) rather than for marketing purposes (Al-Harbi, 2005).

According to the literature the integration of ICT is an important approach that should be adopted by HEIs to deal with the aforesaid interrelated challenges (Krishnaveni & Meenakumari, 2010; Hong & Songan, 2011). ICTs have the potential to increase the efficiency of the storage, management, dissemination, generation, exchange and sharing of information (Kubler & Sayers, 2010), enhancing learning and teaching practices (Comrie, 2011), improving communication within academic communities, creating new patterns of students' access and enhancing an institution's reputation (Bradwell, 2009; EIU, 2008).

ICT has a strategic value and is a basic component of HEIs (Altbach *et al*., 2009; Dhugga & Addison, 2011; Iniesta-Bonillo, Sánchez-Fernández & Schlesinger, 2013; Marshall, 2010 ;EDUCAUSE, 2013) and institutions could struggle to accomplish their daily activities in the absence of ICT-based infrastructure and administrative systems (EDUCAUSE, 2013). According to the Higher Education Funding Council for England (HEFCE) report (2009), advantages of using ICT by institutions can be gained on three levels: limited improvement to increase the efficiency of the current processes (efficiency level), improving the current processes (enhancement level), and radical positive change for the current processes or adopting new processes (transformation level). In this context, Altbach *et al*. (2009) confirm the extent of ICT adoption and its impact on higher education, stating:

> ***ICT is ubiquitous in the higher education sector and constitutes a basic part of institutional infrastructure … and obviously, it influences (or sometimes transforms) higher education, P120.***

A critical aspect of ICT utilisation in higher education is its borderless nature (Edewor, Imhonopi & Urim, 2014) which enables institutions to improve access and increase enrolment opportunities for students in different geographical locations and various demographic characteristics (Hong & Songan, 2011). In

this context, HEIs utilise ICT applications such as Virtual Learning Environments (VLEs) to deliver distance learning or blended learning programmes where traditional teaching is integrated with online learning to provide flexible and accessible learning environments (Comrie, 2011).

HEIs rely on ICT infrastructure to provide flexible learning environments that lead to an increase in their competitiveness in highly competitive markets (Starck & Zadeh, 2013). For example, Numprasertchai and Poovarawan (2006) investigate how an ICT-based project adopted by Kasetsart University in Thailand significantly increased the university's competitiveness. The study describes how ICT can be employed to enhance the teaching and learning process, research, community service and cultural preservation. The ICT infrastructure consists of a VLE called M@xLearn, computer labratories for free internet access, a system for exchanging knowledge, self-learning centres, videoconference systems, research databases, an e-library and e-journals. Another ICT application for increasing universities' marketisation opportunities, reported by Universities UK (2013), is Massive Open Online Courses (MOOCs) which allow institutions to increase awareness of their courses and facilities.

Notwithstanding the above mentioned potential opportunities provided by ICT, HEIs tend to focus on exploiting the ability of ICT to reduce the cost of physical resources and facilitating universities' managerial activities (Selwyn, 2007). Stensaker, Maassen, Borgan, Oftero, and Karseth (2007) report lack of empirical evidence regarding HEIs' consideration of important factors for ICT adoption, such as well-defined institutional strategy, institutional commitment, ICT initiative marketing within the institution and availability of technical and financial resources and support.

In conclusion, despite the fact that ICT offers promising opportunities which enable strategic options for HEIs to face massification, diversification, internationalisation and marketisation challenges, ICT might become a source of challenge for these institutions (Edewor *et al*., 2014) and they would not achieve once they are installed (Nawaz, Awan & Ahmad, 2011); instead HEIs are required to form a comprehensive awareness of how ICT can address their strategic vision (Kubler & Sayers, 2010). One of the key challenges facing HEIs wishing to

maximise ICT opportunities is the ability to bridge the gap between policies and actual practices (Lisewski, 2004), creating the desired organisational change through leadership's commitment (Al-Saleh, 2004; Kubler & Sayers, 2010; Lisewski, 2004; Marshall, 2010), developing strategies that improve institutional goals and vision, deploying resources and techniques that enhance the engagement of individuals at all levels in the institution (e.g. students, academic staff, administrative staff, etc.) (Dhugga & Addison, 2011).

2.2. ICT Impact on Teaching

Higher education institutions have been influenced by two major directions (Roblyer *et al*, 1997 cited in Al-Saleh, 2003). Firstly, the rapid integration of Information and Communication Technologies (ICT) by most universities worldwide (Rudestam & Schoentholtz-Read 2010), and secondly, the transformation of the teaching-learning paradigm from teacher-centred to learner-centred learning (Beaudoin, 1990; McAlpine & Gandell, 2003; Bosco & Gomiz, 2011). These two factors have stimulated the shift toward ICT-enhanced learning environments and created new patterns of communication, interaction and relationships between the teacher and learner (Palloff & Pratt, 2010) which has necessitated the re-shaping of teachers' roles and practices to adapt to the innovative educational settings (Connolly, Jones & Jones, 2007; Dool & Kirschner, 2003; Garrison & Anderson, 2003; Orlando, 2009; Wildflower, 2010).

ICT has the potential to change teaching and learning practices (Anderson, 2005; Mioduser *et al*., 2000). It has the ability to facilitate innovative forms of interaction among teachers and learners (O'Neil, 2006) by synchronous and asynchronous communication technologies (Hattangdi & Ghosh, 2008), offering flexible access to information databases (Laurillard, 2008), improving creative thinking and collaboration skills (Tinio, 2003) and encouraging the shift from teacher-centred to learner-centred pedagogical approaches (UNESCO, 2002). Sandholtz, Ringstaff and Dwyer (1997) compares teacher-centred and learner-centred learning environments, as shown in Table 2.1 below:

Table 2.1. Differences Between Teacher-Centred And Learner-Centred Learning Environment (Sandholtz *et al,* 1997)

	Teacher-Centred Learning Environment	Learner-Centred Learning Environment
Classroom Activities	• Instructive. • Didactic. • Lecture-based	• Constructive. • Interactive. • Collaborative.
Teacher's Role	• Knowledge provider.	• Facilitator.
Learner's Role	• Passive.	• Active.
Instructional Emphasis	• Facts. • Memorization.	• Relationships. • Inquiry and evidences.

	Teacher-Centred Learning Environment	Learner-Centred Learning Environment
Assessment	• Text-based exams • Summative	• Performance-based • Diagnostic
Achievement Indicators	• Quantity.	• Quality of Understanding.
Technology used	• Drill and Practice.	• Interactive and collaborative communication. • Information access.

However, despite the promising opportunities of ICT, particularly its role in enhancing learning environments and improving learners' outcomes, empirical and meta-analyses studies which aim to measure ICT's impact on learners' achievements have not revealed sufficient supportive evidence about the effectiveness of ICT compared to traditional face-to-face instruction (Phipps & Merisoitis, 1999; Russell, 1999; Schmid *et al*., 2009; Underwood, 2004; Wurst *et al*., 2008)

The factors which cause failure to achieve the maximum benefits of ICT have been discussed extensively in the field. A number of studies ascribe the shortcomings of ICT implementation initiatives mainly to the replication of face-to-face teaching pedagogical approaches (Bernard *et al*., 2004; Conole *et al*., 2004; Oliver, 2001), which has widely ignored the required re-conceptualisation and re-forming of these pedagogical strategies to become more effective and efficient in the ICT-enhanced environments, especially in online learning/teaching courses (Lockyer *et al*., 2001). Johnson and Aragon (2003) suggest that traditional teaching methods are reused when ICT is utilised in teaching. They state that:

> ***For example, while television had the potential to significantly alter the way people were educated, its use as an instructional tool built on an existing instructional paradigm by providing 'talking ahead.' P.32.***

Moreover, the reutilisation of the conventional pedagogies has continued with the most recent technologies (Reeves, 2003). Mioduser *et al*. (2000) analysed the pedagogical approach which was utilised on 436 educational websites that offered online courses in different subjects. They concluded that the online courses were text-based and did not facilitate the promotion of pedagogical

forms, such as collaborative, problem solving and decision making activities. They stated that using web technologies in learning can be described as, "One step ahead for the technology, two steps back for pedagogy".

In this context, Schmid *et al.* (2014) refer the importance of pedagogy rather than technology by confirming that while presentational technologies (e.g. MS PowerPoint) provide limited effect on achievement, cognitive support technologies provide greater effect.

The ICT-based teaching literature has been enriched by studies that aim to identify new or adapted teachers' roles and by specifying effective online teaching practices (Carril, Sanmamed and Sellés, 2013; McDougall *et al*., 2010). These studies could provide an important contribution to understanding teachers' practices as a critical factor that influences online teaching effectiveness which will assist universities to design and provide the required training and support (Baran et al., 2011).

It should be noted that online teachers' roles overlap with and are adapted from traditional face-to-face instruction roles (Baran, 2011; Bawane & Spector, 2009; Goodyear, Salmon, Spector, Steeples & Tickner, 2001; Lewis & Abdul-Hamid, 2006). However, online learning environments require teachers to develop competencies which allow him/her to accomplish these roles (Guasch, Alvarez & Espasa, 2010). Table 2.2 shows studies which attempted to identify the nature of the teacher's role in online learning environments.

Table 2.2. Examples Of Studies That Investigated Online Teachers' Roles.

The Study	The Study Design	Online Teachers' Roles
Berg ,1995	Literature review	• Pedagogical Role. • Social Role. • Managerial Role. • Technical Role.
Goodyear *et al*. 2001	A workshop report	• Content Facilitator. • Assessor. • Technologist. • Manager/Administrator . • Researcher. • Advisor/Counsellor. • Designer. • Process Facilitator.
Coppoal *et al*., 2001	Semi-structured interviews for a academic staff	• Cognitive Role. • Affective Role.

The Study	The Study Design	Online Teachers' Roles
	(n=20) in American University.	• Managerial Role.
Eston, 2003	Interviews, Focus group interviews and surveys for online mentors and academic staff in large South-eastern university.	• Instructional Designer. • Interaction Facilitator.
Heuer and King, 2004	Online surveys and thematic analysis for courses discussions (USA).	• Facilitator. • Coach. • Role Model. • Communicator. • Planner.
Liu *et al.*, 2005	Interviews for academic staff (n=28) in Business school in large Midwestern university.	• Course designer. • Feedback-giver. • Profession-inspirer. • Technical Coordinator • Conference manager. • Organiser/Planner. • Social rapport builder. • Interaction Facilitator. • Media Designer.
Bawane and Spector, 2009	Literature review	• Professional role. • Technologist. • Pedagogical role • Advisor/counsellor. • Social role. • Researcher.
Guasch *et al.*, 2010	Workshop for academic staff (n=12) in Open University of Catalonia	• Design/planning function. • Social function. • Instructive function. • Technological domain. • Management domain.

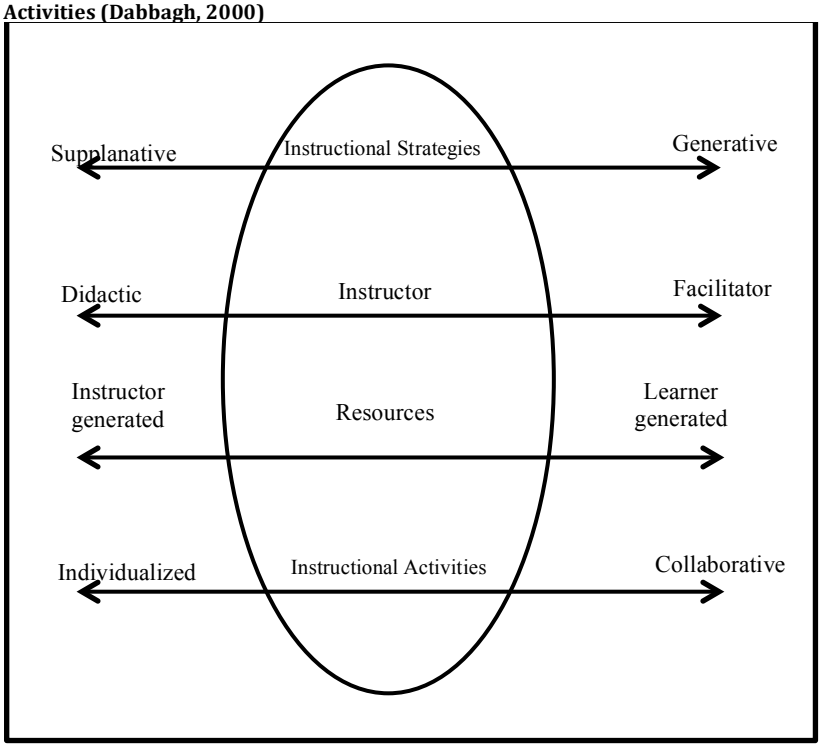
As can be seen from the above mentioned studies, the teacher's role in online learning environments can be classified into three main categories: pedagogical, social and managerial roles.

2.2.1 The Teacher's Pedagogical Role

Developing a pedagogical basis and knowledge and choosing a teaching approach should be given the highest priority when the teacher is involved in online teaching (Bawane & Spector, 2009; Chizmar & Williams, 1997; Summers *et al.*, 2005). Dabbagh (2000) explains how the teacher's pedagogy affects the

choice of instructional strategies, resources and activities. The shift of the teacher's role from a didactic one to that of a facilitator has stimulated the move from instructive to constructive pedagogy which allows learners to generate instructional resources and become involved in collaborative instructional activities (Figure 2.2).

Figure 2.2. Teacher's Pedagogy Effects On Choosing Strategies, Resources And Activities (Dabbagh, 2000)



Ertmer, Leftwich, Sadik, Sendurur and Sendurur (2012) state that teachers' pedagogical beliefs about the role of ICT affect their teaching practices. They conclude that teachers who see ICT as a tool to deliver content, enrich the curriculum or transform learning by supporting new pedagogies, tend to utilise ICT to create learning strategies aligned with these beliefs.

The teacher's pedagogical role includes identifying learning objectives and learners' needs (Laurillard, 2002), designing and organising the content of online learning courses and appropriate online activities which address the learners' needs (Garrison & Anderson, 2003; Goodyear *et al*., 2001), designing navigation maps for the course and identifying interactivity patterns (Al-Saleh, 2005b) and designing assessment schemes (Goodyear *et al.,* 2001; Wijikumar, 2010).

In order to help teachers to develop pedagogical practices, theoretical and practical frameworks have been proposed. These frameworks assert that learner-centred pedagogies, and in particular constructivist learning theories, are the ideal approaches for online learning environments (Kim & Bonk, 2006; Partlow & Gibbs, 2003); however, it has been reported that these approaches could face resistance from learners who are unable to adapt to learner-centred learning environments (Gillespie, 1998) and could face difficulties, especially when they do not have self-regulation strategies (Zacharis, 2011).

Johnson and Aragon (2003) developed a pedagogical model for teaching in online environments which combines behavioural, cognitive and social constructivist learning theories. The framework suggests integrating seven instructional principles (Figure 2.3 and Table 2.3).

Figure 2.3. Johnson and Aragon's Pedagogical Framework (Johnson and Aragon, 2003)

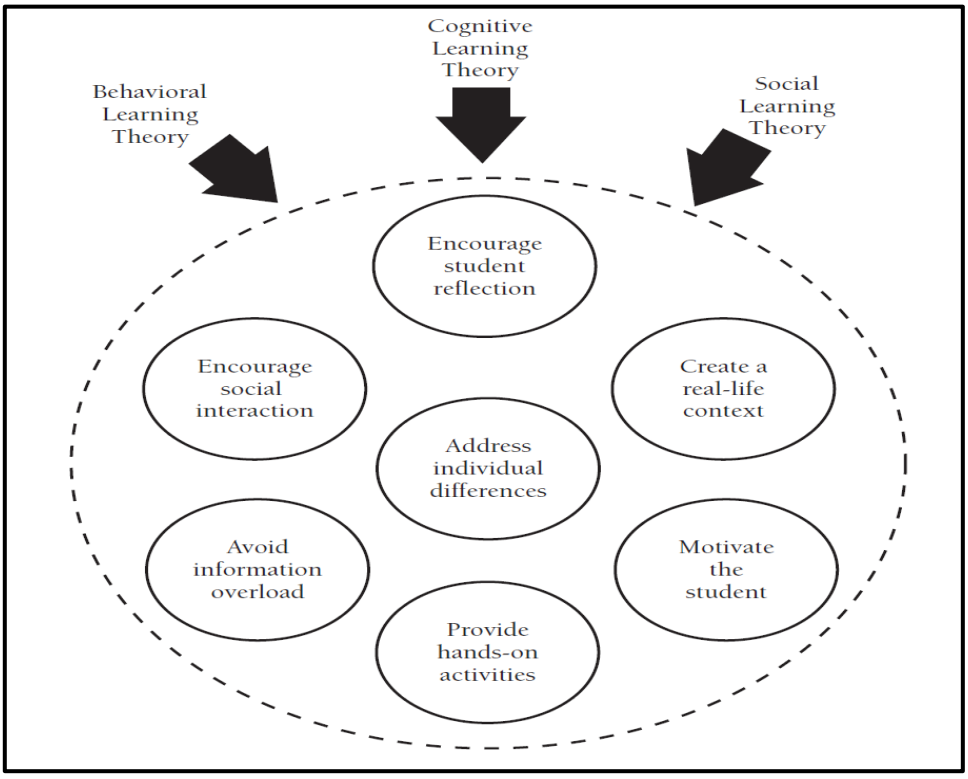


Table 2.3. Johnson and Aragon's Pedagogical Principles and Suggested Practices.

Instructional Principle	Suggested Strategies for addressing the instructional principle
Individual differences: (Learners' skills, abilities	• Delivering content by various technologies. • Enabling freedom to navigate through the course.

and learning styles, etc.)	• Providing diverse individual and collaborative activities.
Motivation: (Learners' attention, confidence and satisfaction)	• Shifting from text-based materials to multimedia. • Providing instructional broadcasts by multiple speakers. • Incorporating and encouraging competitive activities.
Information overload: (Avoiding providing high quantity of information in a short time)	• Dividing the content into mini lectures. • Using "learning cycles" in course designing. ○ Each learning cycle includes content, application and assessment task. • Providing visual illustration for the course structure.
Contextual Learning: (Learners' interaction with the learning context to build their knowledge)	• Creating virtual teams working together in the course activities. • Using real-life examples in teaching the course. • Facilitating collaborative projects with the society's organisations.
Social Learning: (Learning by involving in social interactions)	• Creating personal communication with individual learners'. • Providing two-way feedback between the teacher and the learners. • Encouraging passive learners to participate in course activities.
Active Learning: (Gaining knowledge through activity-based learning strategies)	• Creating project-based courses. • Using Think-pair-share strategy which includes sharing ideas to address open-ended question tasks.
Reflective Learning: (Utilising previous knowledge in new situations)	• Providing external knowledge via online resources. • Providing immediate feedback for confusing content.

An important aspect of the teacher's pedagogical role reported in the literature is that of the teacher as an "assessor" (Bawane & Spector, 2009; Goodyear *et al*., 2001). This role includes designing the assessment and evaluating the learners' performance (Bennett & Lockyer, 2004). Assessment is recognised as a vital part of the online teaching process and one of the most challenging pedagogical issues which has to be addressed when an online course is designed (Anderson, 2004; Gikandi *et al*, 2011). Regardless of the pedagogical approach utilised, the principles of assessment, such as validity, reliability, providing variety and continuous assessment tasks, exist in both the traditional and online learning environments. ICT can provide effective online diagnostic, formative and summative assessment and it makes assessment and providing immediate feedback more engaging, motivational, interactive, valid and accessible than paper-based tests, decreasing the time required for marking, especially when objective tests (e.g. multiple-choice) are applied (JISC, 2007). In the case of

essay-based assessments, teachers can utilise innovative applications with automated scoring that provide immediate feedback on online essays, such as e-rater (Scalise & Gifford, 2006). For example, electronic assessment applications for online essays evaluate the grammar, spelling, confusing words, sentence style, vocabulary level and paragraph structures (Attali & Burstien, 2006). However, these applications could face criticism due to their limitation in evaluating creativity, the logic of an argument and the accuracy of a concept (Palmer *et al*., 2002; Williamson *et al*., 2010).

2.2.2 The Teacher's Social Role

The importance of the teacher's social role arises from the absence of face-to-face interactions and non-verbal communication (Coppola *et al*., 2001; Wildflower, 2010,) and the collaborative nature of the ICT-enhanced learning environment (Teles *et al*., 2001). Garrison *et al*. (1999) identify "social presence" as a crucial element for successful ICT integration into higher education. Social presence is defined as a personal and emotional connection to establish personal and determined relationships and it is classified into three categories: emotional expression, open communication and group cohesion (Garrison, 2003). Easton (2003) emphasises the importance of a teacher as an "interactions facilitator". This role is described by Coppola *et al*. (2001) as the "affective role" and involves creating and managing learners' interactions, facilitating discourse by managing and monitoring discussions to help learners reach a meaningful understanding (Garrison & Anderson, 2003), building and managing relationships between learners or between teacher and learners (Guasch *et al*., 2010), grouping learners to build a collaborative learning community and legalise behavioural regulations with the virtual learning environments (Steven-Long & Crowell, 2010) and enhancing the atmosphere of online learning environments (Sanmamed, Carril & Sangrà, 2014) .

Garrison and Anderson (2003) suggest the following strategies for facilitating social presence:

- Appreciating and welcoming learners to course activities.

- Being supportive and giving encouragement during discussions.
- Giving learners a chance to project their personalities.
- Encouraging inactive learners to engage in discussions.
- Encouraging learners to use email to express their own anxiety and inquiries.

2.2.3 The Teacher's Managerial Role

ICT has affected teachers' managerial responsibilities such as structuring and planning and managing online courses (Baran, 2011), monitoring learners' attendance at seminars and lectures (Coppola *et al*., 2001; Easton 2003), submitting and grading assignments (Watson, 2007), providing feedback and tracking learners' progress (Wake *et al*., 2007). The teacher's managerial role in online environments has been indicated as vital by various studies (Bennett & Lockyer, 2004; Goodyear *et al*., 2001; Tina, 2011). Coppola *et al*. (2001) report that the managerial role of online teachers is related to planning and organising courses and controlling learners' progress. Liu *et al*. (2005) describe two aspects of the teacher's managerial role – first as a "conference manager", ensuring equity and providing rules during the course activities, and secondly as an "organiser and planner" in organising a course's structure with the required flexibility. Furthermore, Goodyear *et al*. (2001) specify two roles of the online teacher which are related to the managerial process. The first describes the teacher as a "process facilitator" who supports learning by clarifying the rules and familiarising learners with the online environment and, secondly, as a "manager/administrator" who manages the learners' registration, attendance and record-keeping. Tina (2011) developed a framework for managerial strategies for online teachers. This framework is divided into three sections:

- Managing online teaching activities by developing strategies to facilitate the control of the workload and track learners' progress.
- Managing behavioural issues to prevent and deal with unacceptable behaviour which could emerge due to the anonymity and absence of the teacher's direct control.
- Managing ethical and legal issues, such as plagiarism and copyright rules.

Table 2.4 shows the suggested strategies for carrying out the three managerial responsibilities.

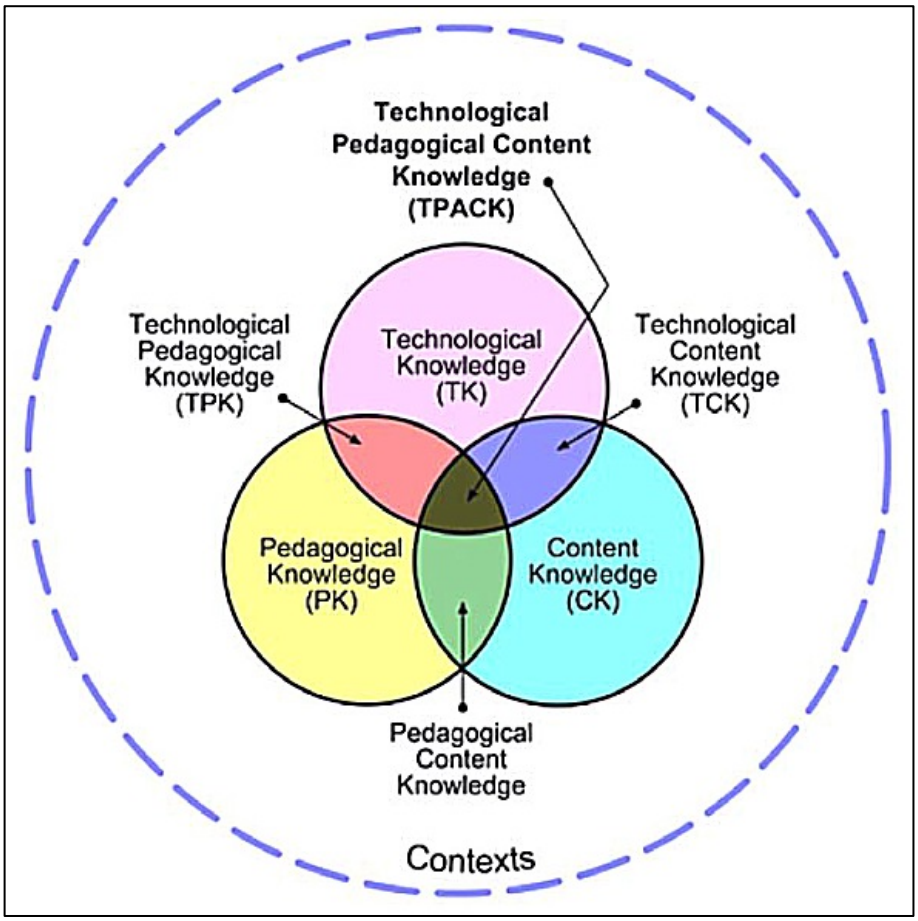
Table 2.4. Suggested Strategies For Addressing Managerial Responsibilities (Tina, 2011)

Managerial role	Strategies to address the role
Managing online teaching activities	• Setting course expectations. • Facilitating complete understanding of course structure. • Illustrating navigation through the course. • Interacting with individuals and answering inquiries. • Preparing time management worksheets to organise teaching activities such as content uploading and participation in discussions. • Sending proactive emails for absent, passive learners. • Grading discussions and assignments and providing frequent feedback. • Designing templates for common enquiries to avoid time being wasted. • Using VLE tools for tracking learners' progress.
Managing behavioural issues	• Dealing with different types of learner personalities. • Setting course rules to prevent inappropriate behaviours.
Managing ethical and legal issues	• Strategies to eliminate plagiarism: • Informing learners about types of plagiarism. • Discussing the consequences of plagiarism. • Showing learners the appropriate ways to check their work. • Dealing with plagiarism detection tools such as Turnitin. • Raising awareness about copyright policy.

The literature shows that online learning initiatives tend to focus on technology (Baran *et al*., 2011) rather than developing and utilising different forms of knowledge (Benson & Ward, 2013). The need for teachers to attain multidimensional integrated knowledge encouraged researchers to develop frameworks to facilitate effective ICT integration (Baran *et al*., 2011; Niess, 2011). Mishra and Koehler (2006) proposed a framework (based on Shulman's pedagogical content knowledge work) to describe the technological, pedagogical and content knowledge (TPCK) required by teachers for effective ICT integration in teaching. The framework which was renamed in 2007 as TPACK (Thompson & Mishra, 2007) (Figure 2.4) consists of three main components and four important forms of knowledge resulting from interactions of the three main

components (Mishra & Koehler, 2008; Koehler, Mishra, Akcaoglu & Rosenberg, 2013; Koehler, Mishra & Cain, 2013; Koehler, Mishra & Yahya, 2007; Mishra & Koehler, 2006). Content Knowledge (CK) refers to knowledge related to subject matter; Pedagogical Knowledge (PK) refers to knowledge related to teaching and learning practices and methods; Technological knowledge (TK): refers to knowledge related to technologies; Pedagogical Content Knowledge (PCK) refers to knowledge of teaching practices (pedagogy) that are applicable to certain disciplines or content; Technological Pedagogical Knowledge (TPK) refers to the appropriateness of knowledge and understanding technologies for specific pedagogical approaches; Technological Content Knowledge (TCK) refers to knowledge of understanding the impact of and selecting appropriate technology for specific content; and finally, Technological, Pedagogical and Content Knowledge (TPACK) refers to synthesized knowledge related to understanding how technology is crafted to meet appropriate pedagogical approaches that is required to teach certain content.

Figure 2.4. Technological Pedagogical and Content Knowledge framework (Mishra & Koehler, 2011)



The TPACK framework can provide important contributions to move from a techno-centric to a techno-pedagogical integration approach (Yurdakul, Odabasi, Kilicer, Coklar, Birinci & Kurt, 2012) and has the potential to improve teachers' preparation and professional development (Garrett, 2014) especially when researchers provide more clarification for framework components and boundaries (Archambault & Barnett, 2010; Graham, 2011).

To conclude, in order to gain the maximum opportunities from ICT, higher education institutions should establish an institutional culture to sustain the implementation of ICT. This culture would make designing, developing and delivering online courses part of the usual activities of the institution's structure (Oliver, 2001). Teachers, as a key element in the success of ICT initiatives are required to adjust their roles and practices by developing the appropriate technical skills and, most importantly, pedagogical, social and managerial practices, to be able to cope with this dual-dimension change, the transmission in the teaching/learning paradigm from the teacher-centred to the learner-centred approach, and the new modes of communication and interaction which are provided by ICT (Connolly *et al.*, 2007; Dool & Kirschner, 2003; Garrison & Anderson, 2003; Orlando 2009; Pow, 2006; Wildflower, 2010).

2.3. ICT Adoption Theories and Models

2.3.0 Introduction

Higher education institutions strive to develop and implement initiatives that aim to adopt ICT in their daily activities (Zayim, Yildirim & Saka, 2006). These initiatives are driven by the promising opportunities of ICT in supporting learning and teaching (Sumak, Herico & Pusnik, 2011; Wang & Wang, 2009). Nevertheless, institutions face considerable challenges in accomplishing their goals (Jan, Lu & Chou, 2012; Park, 2009; Zayim *et al*., 2006) where the targeted individuals' acceptance of the ICT do not meet the anticipated rate (Wang & Wang, 2009).

Successful implementation of ICT initiatives, such as e-learning, necessitates acceptance by targeted individuals (Sumak *et al*. , 2011), Thus institutions are committed to facilitate the ICT adoption by overcoming any noticeable resistance from academic staff (Wang & Wang, 2009). In order to do this, universities are required to contribute by developing positive perceptions toward ICT among academic staff (Panda & Mishra, 2007).

According to Sumak *et al*. (2011) there are various factors that affect individuals' decisions when a new ICT is presented. One of the most common ongoing issues in ICT adoption in the educational context is the exploration of these factors (King & He, 2006; Oye, Iahd & Rabin, 2011; Park, Lee & Cheong, 2008) to develop a comprehensive understanding about why and how individuals adopt ICT.

To simplify the explanation of why and how academic staff reject or adopt ICT and to track their behaviour during the different adoption phases, several models have been developed, adapted from different theories and disciplines (Bates *et al*., 2007; Casanovas, 2010; Ma, Andersson & Streith, 2005). These models, which have been extensively examined, provide valuable details and practical guides for e-learning programme administrators (Ma *et al*., 2005; Raaij & Schepers, 2008; Straub, 2009) and facilitate categorising academic staff according to their adoption rate which assists in developing and customising

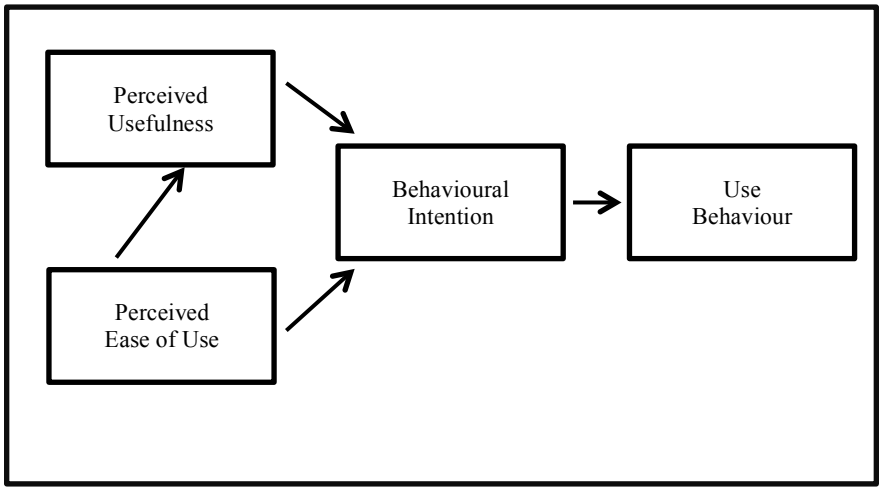
various ranges of support approaches that minimise the gap between these categories (Zayim, *et al.* , 2006).

The following sections summarise the most common models in the literature. In particular, a brief review will be provided for the Technology Acceptance Model, TAM (Davis, 1989; Venkatesh & Davis, 2000), Diffusion of Innovations Theory, DoI (Rogers, 2003), Unified Theory of Acceptance and Use of Technology, UTAUT (Venkatesh, Morris, Davids & Davids, 2003),The DeLone and McLean Model of Information Systems Success, D&M Model (Delone & Mclean, 2003), Post-Acceptance Model of IS Continuance (Bhattacherjee, 2001) and Concern Based Adoption Model, CBAM (Hall & Hord, 1987).

2.3.1 Technology Acceptance Model, TAM

The Technology Acceptance Model, TAM, which was developed by Davis (1989) is considered to be the most often-used model to describe individuals' behaviour toward intention to use ICT (Lin *et al*, 2012; Dwivedi, Michael, Banita & Andrew, 2008; Sumak *et al.*, 2011;). This model, which has been widely tested, is proposed based on the Theory of Reasoned Action, TRA (King & He, 2006; Oye *et al.*, 2011) which is concerned with studying individuals' behaviour in different situations (Park *et al.*, 2008). The TAM model suggests that *Behavioural Intention* which is defined by Warshaw and Davis (1984) as *"conscious plans to perform or not perform some specified future behaviour"* and *Use Behaviour* are influenced by two constructs, namely *Perceived Usefulness* (PU) and *Perceived Ease of Use* (PEU) (Figure 2.5) (Venkatesh, Brown, Maruping & Bala, 2008; Venkatesh & Davis, 2000; Raaij & Schepers, 2008; Straub, 2009).

Figure 2.5. Technology Acceptance Mode (TAM)



Despite the fact that the TAM model is well documented (Park *et al*., 2008), it is criticised for its limitation to two technology-related constructs (Lee, 2008; Liao & Lu, 2008), disregarding predictive factors such as social influences (Ma *et al*, 2005; Manueli, Latu & Koh, 2007) and individual characteristics (Lee, Hsieh & Hsu, 2011; King & He, 2006).

In order to overcome these limitations, the TAM model has been extended by Venkatesh and Davis (2000) to TAM2 by adding *Subjective Norms* from the Theory of Planned Behaviour (TPB) as a third construct for the initial model. TPB assumes that an individual's intention to perform behaviour is affected by social influences (Park, 2009; Venkateh & Davis, 2000; Venkatesh *et al*., 2003). According to Venkatesh *et al.* (2008) the *subjective norms* are determined by: an individual's intention to obtain a reward or avoid punishment (i.e. Compliance), an individual's intention to perform a behaviour to conform with important referents' perspectives about this behaviour (i.e. Identification) and an individual's incorporation of a referents' perceptions into his/her beliefs (i.e. Internalisation).

Table 2.5 shows TAM constructs and a number of studies that support the positive impact of these constructs on variables that facilitate ICT adoption.

Table 2.5. Studies Support Impact Of TAM's Constructs On ICT Adoption.

Model	Theory	Constructs	Construct Definition	Studies confirmed positive effects of the construct on ICT adoption
Technology Acceptance Model (TAM) Davis 1989	TRA	Perceived Usefulness	PU defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (F. Davis, 1989, p. 320).	- Ma et al., , 2005 (IU) - Thong, Hong & Tam, 2006 (ICU) - Ajjan & Hartshorne, 2008 (ATT) - Chang & Tung, 2008 (IU) - Lee, 2008 (IAC.) - Park et al., 2008 (ICU) - Raaij & Schepers, 2008 (USE) - Yuen & Ma, 2008 (IA) - Park, 2009 (ATT) - Sánchez-Franco, Martínez-López & Martín-Velicia, 2009 (IU) - Wang & Wang, 2009 (IU) - Lee *et al*, 2011 (BI) - Najmul Islam, 2011 (SAT) - Oye *et al.* 2011 (SAT) - Cheung & Vogel, 2013 (ATT&BI) - Motaghian, Hassanzadeh & Moghadam, 2013 (IU) - Teo, 2011 (BI)

Model	Theory	Constructs	Construct Definition	Studies confirmed positive effects of the construct on ICT adoption
		Perceived Ease of Use	PEU is the "degree to which a person believes that using a particular system would be free of effort" (F. Davis, 1989, p. 320).	- Thong, Hong & Tam, 2006 (ICU) - Ajjan & Hartshorne, 2008 (ATT) - Chang & Tung, 2008 (IU) - Yuen & Ma, 2008 (IA) - Lee, 2008 (IA) - Park *et al.* 2008 (ICU) - Cheung & Vogel, 2013 (ATT&BI) - Park, 2009 (BI) - Sánchez-Franco, Martínez-López & Martín-Velicia, 2009 (IU) - Motaghian, Hassanzadeh & Moghadam, 2013 (IU)
TAM2 Venkatesh & Davis 2000	TRA TPB	Subjective Norms	SN is defined as " The person perception that most people who are important to him think he should or should not perform the behaviour" 34/428	- Park, 2009 (ATT) - Wang & Wang, 2009 (IU) - Oye *et al.* 2011 (BI) - Cheung & Vogel, 2013 (BI)

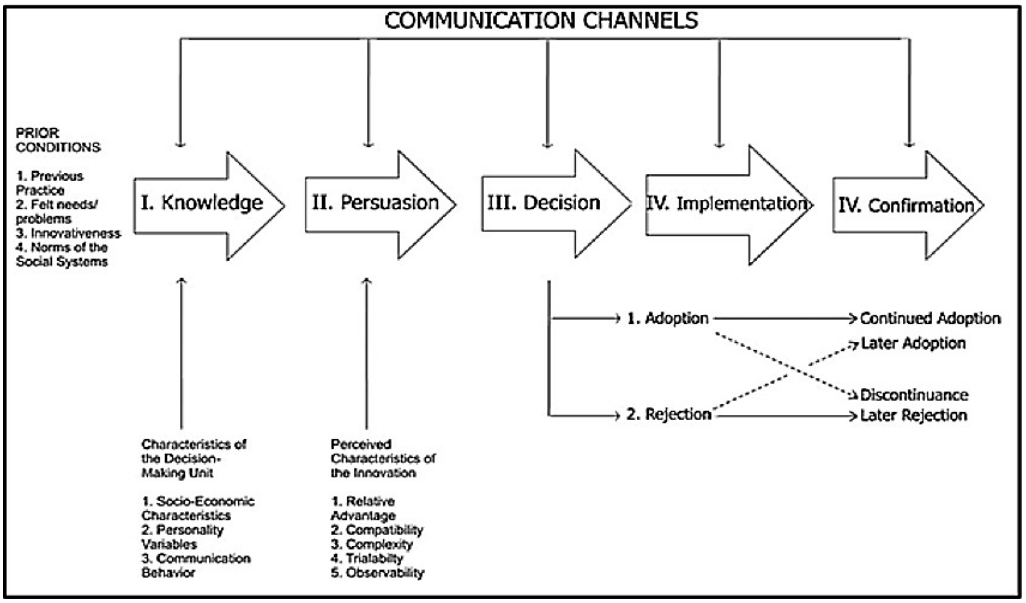
BI= Behavioural intention ID= Intention to adoption AU= Actual Use SAT= Satisfaction ATT= Attitude IU= Intention to Use ICU= Intention to Continuous Use IA.= Intention to Acceptance

2.3.2. Diffusion of Innovations Theory (DoI)

Rogers (1983) proposed a seminal theory to provide a comprehensive explanation for innovation adoption among individuals and organisations. Dwivedi *et al*. (2008) state in their review of the technology adoption literature that the Diffusion of Innovations Theory (DoI) is the second most used and investigated adoption theory. The DoI theory consists of four main components that describe the process of an individual's innovation adoption and innovation diffusion across a population (Figure 2.6) (Askar, Usluel & Muncu, 2006; Rogers, 1983; Sahin, 2006; Strub, 2009).

Firstly, innovation is defined by Rogers (1983) as "*an idea, practice, or object that is perceived as new by an individual or other unit of adoption,* p.35". According to Liao and Lu (2008) the characteristics of innovations are key factors for their adoption. These characteristics are: an innovation's *relative advantages*, *compatibility*, *complexity*, *trialability* and *observability* (Rogers, 1983; Chang & Tung, 2008). Secondly, communication channels, which refer to means (e.g. mass media, interpersonal channels) that are utilised to pass on and share information about a certain innovation between individuals or other organisational units (Manueli *et al*., 2007; Rogers, 1983; Sahin, 2006; Straub, 2009).

Figure 2.6. The Diffusion Of Innovations Model (Rogers, 1983)



Thirdly, a social system is defined as a set of interrelated units (individuals, groups, organisations) that are engaged in joint problem-solving to accomplish a common goal. The social system elements such as social and communication structure, opinion leader and change agents can influence the adoption of an innovation. For example, the social system has a key role in shaping the type of innovation decision according to the degree of individuals' freedom in adopting or rejecting the innovation, that is optional, collective or authority decisions (Manueli *et al*., 2007; Rogers, 1983).

Finally, the fourth component is time, which involves three dimensions: (1) the innovation-decision process that refers to stages through which an individual goes, starting from seeking information about the nature of the innovation in order to develop an appropriate understanding (Knowledge), forming or re-forming an attitude toward the innovation (Persuasion), participation in activities that leads to rejecting or accepting the innovation (Decision), using the innovation (Implementation) and finally (Confirmation) or discontinuance that depends on the extent of support for his/her decision (Lin, Wang & Lin, 2012; Rogers, 1983). (2) Innovativeness which refers to the degree to which one individual adopts an innovation relatively earlier than other individuals. In turn, individuals are categorised according to their innovativeness into five categories:

innovators, early adopters, early majority, late majority and laggards (Trinidad & Newhouse, 2005; Zhou & Xu, 2007). (3) The rate of adoption which refers to "*relative speed with which an innovation is adopted by individuals of a social system"* (Rogers, 1983 P.23). Rate of adoption is determined by the time required for an innovation to be adopted by a certain percentage of members of a social system (Rogers, 1983).

Despite the theory is being criticised that it is limited to providing descriptive rather than facilitative information about the adoption process (Lin *et al*, 2012), the theory is considered to be an ideal approach to investigating ICT adoption in higher education contexts (Casanovas, 2010; Sahin, 2006). Table 2.6 shows innovation characteristics from a number of studies that investigated the impact of these characteristics on variables that facilitate ICT adoption.

Table 2.6. Studies Support Impact Of DOI Theory's Constructs On ICT Adoption.

Model	Theory	Constructs	Construct Definition	Studies confirmed positive effects of the construct on ICT adoption
The Diffusion of Innovations Model (DoI)	Rogers's work (Sociology)	Relative advantage	Relative advantage is the degree to which an innovation is perceived as better than the idea it supersedes. (Rogers, 1983 P.16)	- Lee et al., 2011 (BI) - Liao &Lu, 2008 (I AD.)
		Compatibility	Compatibility is the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters. (Rogers, 1983 P.16)	-Lee et al, 2011 (BI) - Oye *et al.*, 2011 (SAT) - Cheung & Vogel, 2013 (ATT&BI) - Najmul Islam, 2011 (SAT) - Liao &Lu, 2008 (AU) - Chang & Tung, 2008 (IU) - Ajjan & Hartshorne, 2008 (ATT)
		Complexity	Complexity is the degree to which an innovation is perceived as difficult to understand and use. (Rogers, 1983 P.16)	- Lee, Hsieh & Hsu, 2011 (BI-Negative Impact)
		Trialability	Trialability is the degree to which an innovation may be experimented with on a limited basis. (Rogers, 1983 P.16)	- Lee, Hsieh & Hsu, 2011 (BI)
		Observability	Observability is the degree to which the results of an innovation are visible to others. (Rogers, 1983 P.17)	- Lee, Hsieh & Hsu, 2011 (BI)

BI= Behavioural intention ID= Intention to adoption AU= Actual Use SAT= Satisfaction ATT= Attitude IU= Intention to Use

2.3.3. Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh *et al*. (2003) analysed the most cited adoption theories and models for developing and empirically examining a comprehensive model. They proposed the Unified Theory of Acceptance and Use of Technology (UTAUT) by integrating

constructs of eight models. UTAUT consists of four main constructs, namely *Performance Expectancy*, *Effort Expectancy*, *Social Influence* and *Facilitating Conditions* (Jan *et al*., 2012; Raaij & Schepers, 2008 Venkatesh *et al*., 2003). These constructs affect, directly and indirectly, Behavioural Intention and User Behaviour. Venkatesh *et al*. (2003) suggest other variables that interact with four constructs to influence the Behavioural Intention such as Gender, Age, Experience and Voluntariness of Use (Figure 2.7).

Figure 2.7. Unified Theory Of Acceptance And Use Of Technology (UTAUT) (Venkatesh et al., 2003)

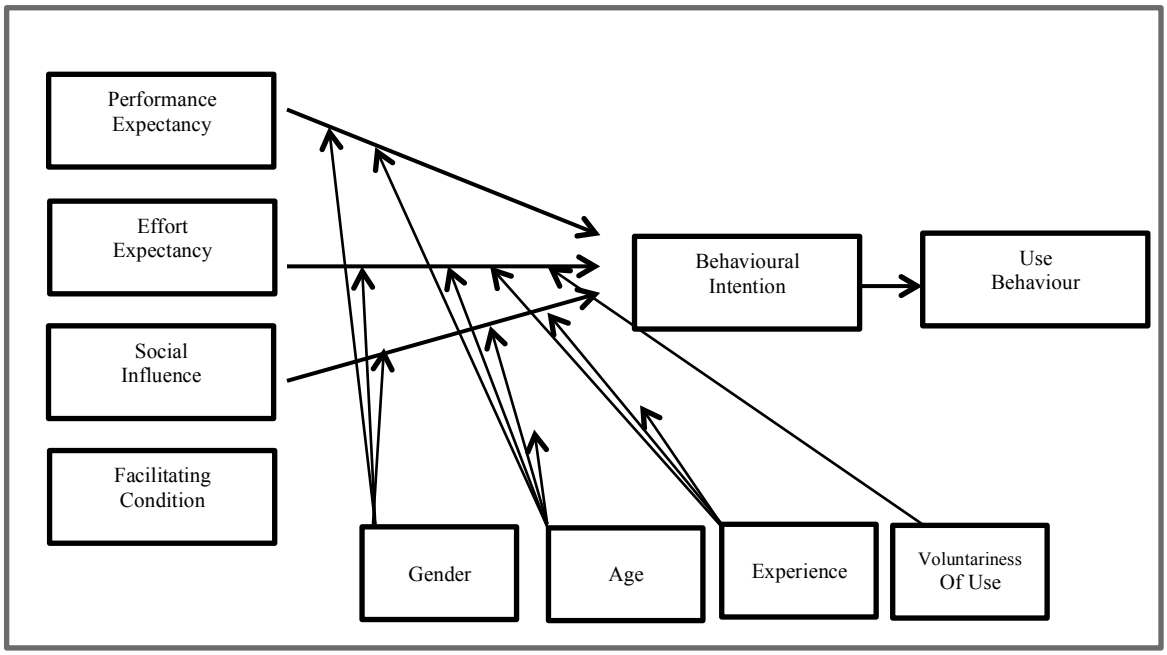


Table 2.7 shows UTAUT constructs and a number of studies that support the positive impact of these constructs on variables that facilitate ICT adoption.

Table 2.7. Studies Support Impact Of UTAUT Constructs On ICT Adoption.

Model	Theory	Constructs	Construct Definition	Studies confirmed positive effects of the construct on ICT adoption
The Unified Theory of Acceptance and Use of Technology (UTAUT) Venkatesh, Morris, Davids & Davids, 2003	Integrated 8 theories and models	Performance Expectancy	PE is defined as " the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (Venkatesh et al., 2003, 447)	- Duyck, Pynoo, Devolder, Voet, adang & Vercruysse, 2008 (UA) - Oye *et al.*2011 (BI) - Pynoo, Devolder, Tondeur, Braak, Duyck & Duyck, 2011 (IU)
		Effort Expectancy	EE is defined as " the degree of ease associated with the use of systems" (Venkatesh et al., 2003 p450)	- Oye *et al.,* 2011 (BI) - Pynoo, Devolder, Tondeur, Braak, Duyck & Duyck, 2011 (IU)
		Social Influence	SI is defined as " the degree to which an	See table 2.5

			individual perceives that important others believe he or she use the new system" (Venkatesh et al., 2003, p451)	
		Facilitating Conditions	FC is defined as " the degree to which an individual believes that an organisational and technical infrastructure exists to support use of the system" (Venkatesh et al., 2003, p453)	- Duyck, Pynoo, Devolder, Voet, Adang & Vercruysse, 2008 (UA) - Oye *et al.,* 2011 (BI) - Teo, 2011 (BI)

BI= Behavioural intention AU= Actual Use IU= Intention to Use UA= User Acceptance

2.3.4. Delone and McLean Model

Delone and McLean (2003) present a model that combines three constructs as indicators to ICT adoption success. The D&M model assumes that System Quality, Information Quality and Service Quality have positive direct affect on intention to use, use and user satisfaction (Hassanzadeh *et al.*, 2012; Najmul islam, 2011; Wang & Wang, 2009) (Figure 2.8) (Table 2.8).

Figure 2.8. Delone And Mclean Model (2003)

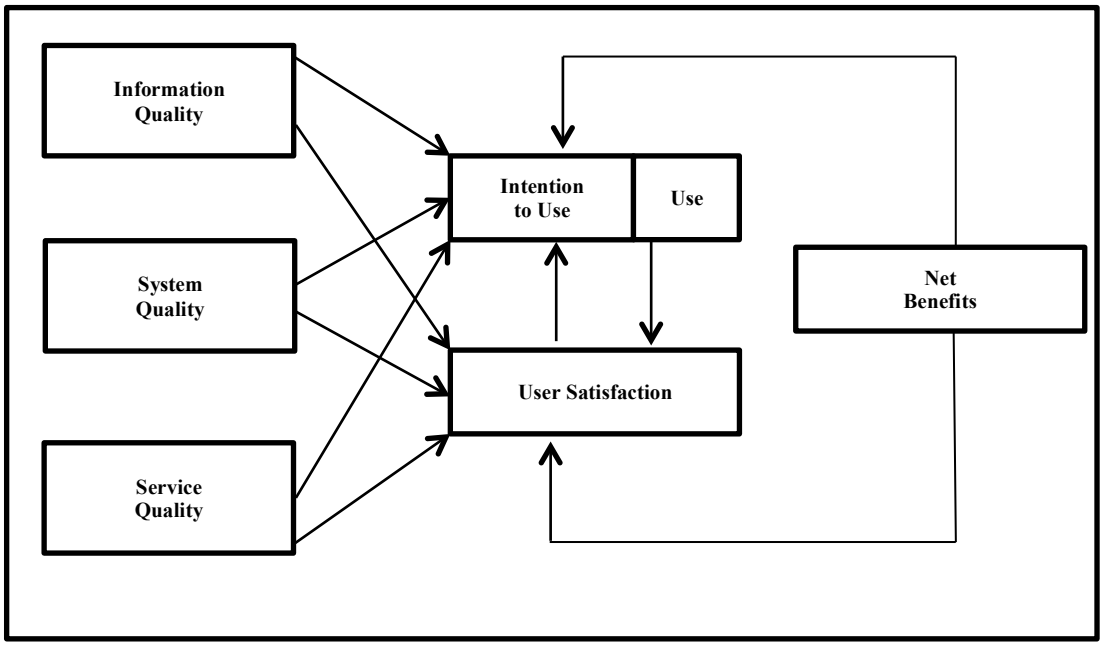


Table 2.8. Studies Support Impact Of Delone & Mclean Model Constructs On ICT Adoption.

Model	Theory	Constructs	Construct Definition	Studies confirmed positive effects of the construct on ICT adoption
The DeLone & McLean Model of Information System Success	Related Literature.	System Quality	System quality is the desirable characteristics of an information system. For example: ease of use,	- Lin & Lee, 2006 (SAT) & (BI) - Lin, 2007 (SAT), (BI) &

2003			system flexibility, system reliability, and ease of learning, as well as system features of intuitiveness, sophistication, flexibility, and response times. (Petter, Delone & Mclean, 2008 P. 238)	(AU) - Ramayah, Ahmad & Lo, 2010 (IU) - Al-Busaidi & Al-Shihi, 2012 (SAT) - Eom, Ashill, Arbaugh & Stapleton, 2012 (SAT)
		Information Quality	Information Quality is the desirable characteristics of the system outputs. For example: relevance, accuracy, conciseness, completeness, understandability, currency, timeliness, and usability. (Petter, Delone & Mclean, 2008 P. 239)	- Lin & Lee, 2006 (SAT) & (BI) - Lin, 2007 (SAT), (BI) & (AU) - Chang & Tung, 2008 (IU) - Ramayah, Ahmad & Lo, 2010 (IU) - Najmul Islam, 2011 (SAT) - Oye *et al.*, 2011 (SAT) - Al-Busaidi & Al-Shihi, 2012 (SAT) - Eom, Ashill, Arbaugh & Stapleton, 2012 (SAT) - Motaghian, Hassanzadeh & Moghadam, 2013 (IU)
		Service Quality	Service Quality: the quality of the support that system users receive from the IS department and IT support personnel. For example: responsiveness, accuracy, reliability, technical competence, and empathy of the personnel staff. (Petter, Delone & Mclean, 2008 P. 238)	- Lin & Lee, 2006 (SAT) & (BI) - Lin, 2007 (SAT), (BI) & (AU) - Ramayah, Ahmad & Lo, 2010 (IU) - Hassanzadeh *et al*., 2012 (IU)

BI= Behavioural intention AU= Actual Use SAT= Satisfaction ATT= Attitude IU= Intention to Use

2.3.5. Post-acceptance model of ICT continuance

Where the aforementioned models are limited to clarifying the dynamics followed by an individual starting from awareness through to making a decision about the innovation, Bhattacherjee (2001) proposed the Post-acceptance model of ICT continuance that predicts individuals' behaviour after the adoption phase. The model, adapted from the Expectations–Confirmation theory that concerns the study of consumer satisfaction, asserts that continuous intention to use an innovation basically depends on an individual's *satisfaction* which is determined by the gap between his/her initial *expectations* of the innovation and achieving these expectations (*confirmation*) (Bhattacherjee, 2001; Najmul Islam, 2011; Sorebo, Halvari & Kristiansen, 2009) (Figure 2.9).

Figure 2.9. Post-Acceptance Model Of ICT Continuance (Bhattacherjee, 2000)

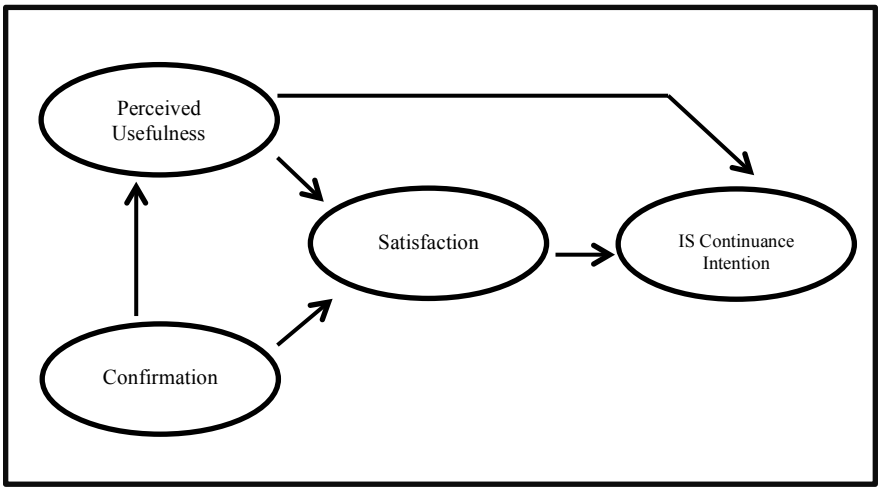


Table 2.9 shows post-acceptance model constructs and a number of studies that investigated the impact of these constructs on variables that facilitate ICT adoption.

Table 2.9. Studies Support Impact Of Post-Acceptance Models Constructs On ICT Adoption.

Model	Theory	Constructs	Construct Definition	Studies confirmed positive effects of the construct on ICT adoption
Post-acceptance model Bhattacherjee, 2001	Expectations-Confirmation Theory TAM	Confirmation	Confirmation defined as: A user's determination to what extent that his/her initial expectation (of using a system) has is confirmed (by its performance). (Bhattacherjee, 2001)	- Thong, Hong & Tam, 2006 (ICU) - Larsen, Sørebø & Sørebø, 2009 (SAT) - Sorebo, et al., 2009 (SAT) - Najmul Islam, 2011 (SAT) - Oye *et al.,* 2011 (SAT)
		Satisfaction	Satisfaction defined as "a pleasurable or positive emotional state resulting from the appraisal of one's job." (Locke, 1976 Cited in Bhattacherjee, 2001, p 353)	- Thong, Hong & Tam, 2006 (ICU) - Larsen, Sørebø & Sørebø, 2009 (ICU) - Sorebo et al, 2009 (IU) - Eom, Ashill, Arbaugh & Stapleton, 2012 (Individual Impact)
		Perceived Usefulness	Adapted from TAM	See Table 2.5

ICU= Intention to Continuous Use SAT= Satisfaction IU= Intention to Use

2.3.6. Concerns-Based Adoption Model (CBAM)

The Concerns-Based Adoption Model (CBAM) was originally proposed in 1973 by Hall, Wallace & Dossett to provide a theoretical frame to measure and explain the change process among teachers' concerns (Hall & Hord, 1987). Based on

assumptions which assert that change is a developmental process, individuals' feelings about innovation is an important factor to facilitate the change (Anderson, 1997; Tunks & Weller, 2009; Saunders, 2012), CBAM suggests three dimensions which measure teachers' change processes, namely Stages of Concern (SoC), Level of Use (LoU) and Innovation Configuration (IC) (Kapustka & Damore, 2009; Lin *et al.,* 2012; Tunks & Weller, 2009; Saunders, 2012).

Stages of Concern (SoC) are related to feelings and perceptions formed by an individual (i.e. teacher) through the change process (Kapustka & Damore, 2009; Saunders, 2012). Hall and Hord (1987) describe seven stages of concern: awareness, informational, personal, management, consequences, collaboration and refocusing concerns. These concerns are divided into three dimensions: self, task and impact concerns (Table 2.10) (Alias & Zainuddin, 2005; Berg, 1993; Evans & Chauvin, 1993; Hall & Hord, 1987; Khoboli & O'Toole, 2012; Saunders, 2012).

Table 2.10. Stages Of Concerns (SoC) (Concerns-Based Adoption Model)

Concern's Dimension	Stage	Stage's Description
Self-Concerns	0 Awareness	A little concern about the innovation.
	1 Informational	Seeking more details to form general awareness about the innovation such as general facts, requirements. etc.
	2 Personal	Individuals concerns about his/her ability to implement the innovation.
Task Concerns	3 Management	Concerns focus on performance of innovation issues such as the required time, efficiency … etc.
Impacts Concerns	4 Consequences	Teacher's concerns related with innovation's impact on learners.
	5 Collaboration	Concerns related with teacher's interest in cooperation with collage during implementation.
	6 Refocusing	Enhancing innovation by making modifications or seeking alternative.

Level of Use (LoU) is the second dimension of CBAM that focuses on individuals' behaviour when they are preparing for, using and obtaining the change experience (Anderson, 1997). Innovation use can be ranged over eight levels: non-use, orientation, preparation, mechanical, routine, refinement, integration and renewal (Table 2.11) (Anderson, 1997; Berg, 1993; Kaputstka & Damore, 2009).

Table 2.11. Levels Of Use (LoU) (Concerns-Based Adoption Models)

Level of Use	Level's indicators
0 Non-use	Individual has a little or no interest to use the innovation.
1 Orientation	Individuals seeking to gain information about the innovation.

2 Preparation	Individual's attempts to practice the innovation before the actual use.
3 Mechanical	Adapting the innovation to become more manageable by making some changes.
4 Routine	Developing a stable pattern of innovation use.
5 Refinement	Making changes to increase innovation's positive impact on learners.
6 Integration	Seeking cooperation with colleagues to increase positive impact of innovation.
7 Renewal	Modifying innovation to enhance its impact.

Innovation Configuration (IC) is the third dimension of CBAM that focuses on describing variations of the implementation of an innovation by individuals (Anderson, 1997; Saunders, 2012). These different forms of implementation are necessitated by specific needs for the different contexts (Tunks & Weller, 2009). CBAM's three dimensions offer diagnostic information that provides a framework to understand the change process (Song, Wang and Liu, 2011). Furthermore, they help to design support strategies that facilitate the change (Khoboli & O'Toole, 2012; Saunders, 2012). For example, Song *et al.* (2011) suggest support factors that address concerns across different levels such as technical and pedagogical training, technical support and incentives.

2.3.7. An Integrated Approach

Adoption models and theories could provide insufficient information about the context under investigation if they are utilised individually (Straub, 2009). Thus, researchers adopt an integrated approach by combining constructs from different theories and models to build a hybrid model in order to develop a comprehensive understanding (Park *et al*., 2008). Table 2.12 shows a number of studies that combine more than one model with related variables such as self-efficacy (Ajjan & Hartshorne, 2008; Motaghian, Hassanzadeh & Moghadam, 2013; Wang & Wang, 2009), motivation (Park *et al*., 2008; Sorebo *et al*., 2009), perceived support (Najmul Islam, 2011), computer anxiety (Al-Busaidi & Al-Shihi, 2012), attitude and flow as a cultural factor (Sanchez-Franco, Martinez-Lopez & Martin-Velicia , 2009).

Table 2.12. Studies That Integrated Models To Investigate Impact Of Variables On ICT Adoption

No	Study	Targeted Population	Adoption Model	Tested Constructs	The Study Result
1	Ajjan & Hartshorne, 2008	Academic staff in a university in the south-	*Theory of Planned Behaviour*	Perceived Usefulness	Perceived usefulness of Web 2.0 technologies has a significant effect on attitudes toward Web 2.0 technologies.

No	Study	Targeted Population	Adoption Model	Tested Constructs	The Study Result
		eastern United States	Attitude	Perceived Ease of Use	Perceived ease of use of Web 2.0 technologies with existing technologies has significant effects on attitudes.
				Compatibility	Compatibility of Web 2.0 technologies with existing technologies has a significant effect on attitudes.
				Attitude toward Web 2.0 technologies has a very significant effect on behavioural intention.	
			Subjective Norms	Students Influence	Student influence has significant effects on subjective norm.
				Peer Influence	Peer influence has a significant effect on subjective norms.
				Superior Influence	Superior influence has significant effects on subjective norm.
				Subjective norm has no significant effect on the behavioural intention.	
			Perceived behavioural control	Self-efficacy	Self-efficacy has a significant effect on perceived behavioural control.
				Facilitating Condition-resources.	Facilitating conditions—resources has no significant effects on the perceived behavioural control.
				Facilitating Condition-technology.	Facilitating conditions—technology has no significant effects on the perceived behavioural control.
				The perceived behavioural control has a significant effect on the behavioural intention. The behavioural intention has a very significant effect on actual behaviour	
2	Park, *et al.*, 2008	Academic staff in a university in Western United States	TAM	Perceived Usefulness	Perceived usefulness has a positive effect on behavioural intention to keep using e-learning.
				Perceived Ease of Use	Perceived ease of use has a positive effect on behavioural intention to keep using e-learning.
			Gratification Approach	Motivation	Motivation has a positive effect on perceived usefulness, perceived ease of use and evaluation of functions. Motivation has an indirect positive effect on behavioural intention to keep using e-learning.
				Compliance with school policy	School policy has a positive effect on the current use of e-learning.
				Instructional technology clusters	Technology clusters has indirect significant effect on current using.
				Evaluation of functions	The evaluation of functions has no significant effect on behavioural intention to keep using e-learning.
3	Larsen, Sørebø & Sørebø, 2009	Academic staff in three universities in Norway	Expectation–Confirmation Theory	Confirmation	Expectations confirmation has positive effect on users' satisfaction.
				Satisfaction	Expectations Confirmation has indirect positive effect on continuous intention to use ICT.
			Theory of Task-Technology Fit (TTF)	Perceived task-technology	Users' satisfaction promotes a strong intention about continuous use of ICT.
				Utilization	Perceived task-technology fit is positively related with utilization level.
			TAM	Perceived Usefulness	Utilisation has a positive effect on continuous intention to use ICT.
4	Sanchez-Franco, Martinez-Lopez & Martin-Velicia, 2009	Academic staff in universities in two dissimilar cultures (Nordic & Mediterraean)	TAM	Perceived Usefulness	Perceived usefulness has a positive effect on intention to use Web-based technologies In two dissimilar cultures (PSG-Mediterranean and Nordic Culture).
				Perceived Ease of Use	Perceived ease of use has a positive effect on attitude towards usage. Perceived ease of use has a positive effect on perceived usefulness. Perceived ease of use has a positive effect on indirect effect on Intention to use
				Attitude	Perceived attitude towards use has significant direct effects on intention to use In two different cultures
			Cultural Dimension	Flow	Flow has no significant direct effect on intention to use in the PSG-Mediterranean

No	Study	Targeted Population	Adoption Model	Tested Constructs	The Study Result
			TAM		culture. Flow has significant direct effect on intention to use in the Nordic Culture.
				Perceived Usefulness	Perceived usefulness has a positive effect on intention to use Web-based technologies In two dissimilar cultures (PSG-Mediterranean and Nordic Culture).

In the Saudi context, very few studies have employed adoption theories and models to explore the impact of their constructs on academic staff's decisions. Al-Harbi and Drew (2014) employed TAM and external constructs to examine their impact on the attitudes and behavioural intention to use the VLE of academic staff in a university in Saudi Arabia. They found that perceived ease of use and perceived usefulness have positive effects on attitude and behavioural intentions to use the VLE. Furthermore, they found that prior experience in using VLEs has a positive effect on behavioural intention to use the VLE.

To conclude, the investigation of ICT adoption has inspired number of studies (Bandyopadhyay & Bandyopadhyay, 2010). These studies show that adoption at individual and organisational levels is a complex, cognitive, social and developmental process (Straub, 2009). Therefore, universities should adapt an integrated approach that takes into account the overlapping individuals', technological and organisational characteristics (Jeyaraj, Rottman & Laucity, 2006; Zhau & Xu, 2007) to explore academic staff's adoption behaviour and to form an extensive understanding of the factors that influence, hinder or facilitate the ICT adoption.

One common factor revealed by the aforementioned reviewed models and studies is institutional support. Different terms used to indicate this dimension, are Facilitating Conditions (UTAUT) (Venkatesh et al., 2003), Service Quality (D&M Model) (Delone &Mclean, 2003), Perceived Support (Oye *et al.*, 2011), Management Support and Training (Al-Busaidi & Al-Shihi, 2012). These constructs have direct and indirect positive effects on attitude (e.g. Ajjan & Hartshorne, 2008), satisfaction (e.g. Al-Busaidi & Al-Shihi, 2012; Najmul Islam,

2011), Perceived Ease of Use (e.g. Wang & Wang, 2009) and Intention to Use (e.g. Motaghian *et al*., 2013; Oye *et al.*, 2011; Wang & Wang, 2009).

Jeyaraj *et al*. (2006) in their review found out that management support is the best predictor for individuals' adoption of innovation. Moreover, Straub (2009) states that a teacher could reject adopting a useful ICT in teaching, if he/she feels the personal cost will be high (according to CBAM). Thus, providing the required support such as clear strategies and policies, technical and pedagogical support and training and well-established incentives structure are essential factors that motivate academic staff to accept and adopt ICT (Graham *et al.*, 2013).

2.4. Institutional support for academic staff

In recent decades, there has been a growth in investing in e-learning initiatives amongst higher education institutions (Al-Saleh, 2004; Sun, Tsai, Finger, Chen & Yeh, 2008). However, these initiatives have been challenged by barriers that could cause a threat to their success and sustainability. The literature reports the noticeable resistance by academic staff to become involved in institutions' e-learning initiatives as a major obstacle to their success (Moser, 2007; Olcott & Wright, 1995; Perreault *et al*., 2008. This resistance arises from institutional, technical and pedagogical challenges that have come about by the shift from traditional to e-learning teaching settings (McPerson & Nunes, 2006; Ocak, 2011). Studies have shown that despite policy makers in institutions proposing and applying e-learning initiatives, they largely neglect academic staff's concerns (Ocak, 2011). Consequently, academic staff develop concerns about the effectiveness of top-down initiatives on learning (Moskal *et al.*, 2013) which could lead to a considerable gap between policy and practice (Gunn, 2010). McGill *et al.* (2014) argue that the success of e-learning initiatives requires institutional policy, commitment, professional development, and reliable infrastructure. In other words, the accomplishment of e-learning initiatives relies on a strong relationship between institutional support resources and their ability to motivate academic staff's involvement (Bacow, Bowen, Guthie & Long, 2012; D'Silva & Reeder, 2005). Such involvement, as a critical factor for these initiatives (Moskal *et al*., 2013), can be achieved by the ability of institutions to encourage academic staff to become involved in organisational change (Schneckenberg, 2010), raising their readiness level (Al-Saleh, 2004; Roberts, 2008), and removing any demotivating factors (Al-Sonaidi *et al*., 2009).

Due to the recognition of the importance of the role of academic staff as a key factor in the success of e-learning initiatives (Bolliger & Wasilik, 2009; Fetzner, 2003; Kim & Bonk, 2006) and in order to achieve a high level of satisfaction, an investigation of the potential factors which could drive academic staff to adopt or resist becoming involved in e-learning needs to be undertaken. Maguire (2005) carried out a review to investigate the barriers to academic staff participating in e-learning initiatives. The review's findings indicated that the majority of

barriers were related to administrative support (e.g. workload, lack of recognition and monetary rewards) and technical support (e.g. lack of reliable technical infrastructure, lack of technical training and pedagogical knowledge). Pajo and Wallace (2001) classified the barriers into three main categories, namely personal factors (e.g. time required, lack of skills and lack of role models), attitudinal factors (e.g. concerns about the technology's effectiveness, anxiety about career prospects) and organisational factors (e.g. insufficient technical support, teaching support and recognition). In the Saudi Arabian context, Al-Mulhem (2013) investigated the barriers that hinder academic staff's participation in e-learning in the School of Education at an eastern university in Saudi Arabia. The academic staff (n=69) ranked lack of training followed by lack of infrastructure support and lack of the required knowledge as the greatest barriers to participation in e-learning. Alenezi (2014) carried out a study to explore the challenges and factors that support integration of ICT in teaching environments in Education faculties in five Saudi universities. The qualitative part of the study that targeted academic staff (n=15) and policy makers (n=5) revealed that ICT integration initiatives face challenges such as technical challenges (i.e. absence of technical staff in faculty level), challenges related to students (i.e. availability of computers and laptops), challenges related to academic staff (i.e. insufficient ICT skills), cultural challenges (i.e. change resistance). In addition, participants reported mechanisms to support the integration process such as financial incentives, providing laptops, minimising the gaps between the ICT-related regulations and the required support practices, organising ICT training programmes.

In addition, Al-Shammari and Higgins (2015) investigated obstacles that face academic staff in four universities in Saudi Arabia. Academic staff (n=375) reported the following obstacles: absence of e-learning institutional policy, lack of integration between e-learning and the university curriculum, lack of technical and instructional designing support, lack of training and the required time for increased responsibilities. Table 2.13 summarises the studies which aimed to investigate the barriers which limit academic staff participation in e-learning initiatives.

Table 2.13. Barriers That Limit Academic Staff Participation In E- Learning Initiatives.

No.	The Study	Methodology and Sample	Results
1	Schifter, 2000	A survey in a large urban university in the USA Respondents: 263 academic staff, 11 administrative staff.	- Lack of technical support. - Lack of time. - Concerns of workload.
2	Templeton, 2001	A literature review	- Lack of recognition. - Lack of support. - Fears of change.
3	Chizmar & Williams, 2001	A survey in Illinois University, USA N= 105 respondents.	- Lack of require time. - Lack of rewards and investments.
4	Butler & Sellborn, 2002	A survey in Ball State University N= 125 respondents.	- Weak technical infrastructure. - Lack of time. - Lack of institutional support.
5	Newton, 2003	A literature analysis	- Increased time. - Lack of institutional incentives. - Unclear institutional vision. - Lack of technical & Pedagogical support.
6	Naidu 2004	A survey in Manchester Metropolitan University, United Kingdom N= 339	- Lack of time. - Lack of technological Knowledge. - Lack of technical support.
7	Panda & Mishra 2007	A survey in Andira Gandhi National Open University, India N= 78 respondents.	- Concerns of students' access. - Lack of training. - Weak technical infrastructure. - Lack of technical & pedagogical support.
8	Heltz *et al.* 2007	A guided group discussion. 4 groups (5-7 participant/group) Online questionnaire. An Eastern university, USA	- Inadequate compensation. - Technical difficulties. - Lack of support.
9	Al-Soniadi *et al.* 2009	A survey N= 100 respondents. College of Applied Sciences, Oman	- Lack of technical infrastructure. - Lack of institutional support. - Underestimating of technology's value. - Lack of confidence.

It is clear that the aforementioned barriers which are related to institutional support issues, such as financial, technical, training and pedagogical support, influence academic staff's decisions to participate in e-learning initiatives (McGill *et al.*, 2014; Templeton, 2001; Latorre, 2006). Hence, the academic staff's perception of the institution's efforts that aim to assist him/her to overcome the obstacles is widely reported as an important factor in facilitating and accelerating the adoption rate of e-learning initiatives (Al-Busaidi & Al-Shihi, 2012; Fetzner, 2003; Olcott & Wright, 1995; Orr *et al.*, 2009; Wolcott, 1998;

Zavic-Butorac & Nebic, 2009). The significance of institutional support arises from its role in assisting academic staff to overcome the internal resistance of the emerged educational setting (Fein & Logan, 2003; Moskal, *et al*., 2013), enhancing beliefs and attitudes toward e-learning (Panda & Mishra, 2007) and improving technical and pedagogical knowledge and skills (Pirani *et al*., 2009). Phipps and Merisotis (2000) assert that institutional support and academic staff support are essential elements in ensuring the quality of e-learning programs. Moser (2007) describes the impact of insufficient institutional support on Rogers' adopter categories, arguing that whilst innovators will continue to adopt technology as they are motivated by internal motivators, the early adopters and early majority will abandon technology. Meanwhile, the late majority and the laggards will not adopt it. Schneckenberg (2010) confirms the importance of the presence the institutional support, stating:

> ***E-learning innovators in the faculty realise, as a consequence, that their universities do not reward them, that e-learning is not becoming an institutional priority and that they are, in essence, damaging their academic careers by not investing sufficient time for research, p980.***

This section reviews appropriate institutional support approaches which could address the most frequently reported barriers, in particular those related to the attitudes of academic staff, insufficient technical and pedagogical skills and knowledge, workload concerns and lack of incentives issues.

The academic staff's beliefs and attitudes towards e-learning play a crucial role in facilitating or delaying their involvement in initiatives (Higgins & Moseley; 2001; Kosak *et al*., 2004). Several interrelated factors may lead academic staff to form a negative attitude towards e-learning (Panda & Mishra, 2007). For example, doubts about the quality of e-learning courses and the effectiveness of technology in enhancing learning outcomes (Bower, 2001; Butler & Sellborn, 2002; Moskal *et al*., 2013; Pajo & Wallace, 2001), concerns about learners' ability to access e-learning environments (Al-Sonaidi *et al*., 2009; Panda & Mishra, 2007), lack of technical skills (Bacow *et al*., 2012; Naidu, 2004), the necessity of re-forming pedagogical practices (Bernard *et al*., 2004) and the time required for learning new technologies and for designing, developing, delivering and teaching

an online course (Chizmar & Williams, 2001; Newton, 2003; Ocak, 2011; Pajo & Wallace, 2001) are all experienced by academic staff.

Institutions should establish a set of procedures in order to encourage a positive attitude toward e-learning initiatives (Bacow *et al*., 2012; Wolcott, 2003). These procedures should include enlightening and increasing academic staff awareness about the considerable pedagogical opportunities which are offered by the technologies which address the learners' needs (Bower, 2001), surmounting their concerns about the time required for designing and teaching e-learning courses and their impact on research activities (Jenkins, Browne, Walker & Hewitt, 2010; Nichols, 2008), providing reliable technical infrastructure and appropriate facilities that ensure seamless access for academic staff and learners (Moskal *et al*., 2013; Phipps & Merisotis, 2000; Pirani *et al*., 2003; Templeton, 2001). In addition, since academic staff are affected by e-learning initiatives, they should be involved and represented during the planning stages and involved in implementing processes (Bower, 2001; Gunn, 2011; Hardaker & Singh, 2011; Templeton, 2001) and institutions should establish clear and stable strategies, clarify the importance of e-learning in the institution's vision and the significant role that could be played by academic staff to fulfil the institution's strategies (Fetzner, 2003; Orr *et al*., 2009; Porter et al., 2014). Such procedures would demonstrate the institution's commitment to providing various supportive resources to help academic staff to minimise their concerns about the new teaching settings (Orr *et al*., 2009).

ICT is considered as a challenge for academic staff (Fein & Logan, 2003), especially when they are asked to utilise technological applications such as Virtual Learning Environments (VLEs) with insufficient skills (Raaij & Schepers, 2008). These challenges require academic staff to develop new skills and knowledge (Chen, 2011; Wilson, 2012). Studies have indicated that inadequate technical and pedagogical training and support as one of the most frequent barriers to academic staff engaging in e-learning initiatives (Arabasz & Baker, 2003; Naidu, 2004; Taylor & McQuiggan, 2008).

E-learning initiatives could face difficulties in achieving their aims due to a failure to provide relevant training programmes that enhance academic staff's

technical skills (Arabasz *et al*., 2003) and the absence of a reliable support mechanism for technical issues (Heltz *et al*., 2007). As well as technical skills issues, Park and Moser (2007) identify the pedagogical aspect of e-learning, such as instructional design skills, as the most challenging, stating that these should be addressed by institutions. Studies have reported that pedagogical skills have been disregarded in training programmes (Al-Saleh, 2000; Ham & Wenmoth, Hodgen, Puketapu & Ruckstuhl 2007). Academic staff's pedagogical knowledge and practices are indispensable for the effectiveness of e-learning courses (Masoumi & Lindstorm, 2012; Watson, 2007). In addition, academic staff face difficulties in terms of re-conceptualising their roles in the e-learning environments (Coppola *et al.*, 2001; Ocak, 2011).

According to Moskal *et al*., (2013) academic staff need to widen their range of skills to design, develop and deliver effective e-learning courses. Thus, institutions should develop ongoing processes to assess academic staff's technical and pedagogical skills, in order to determine training needs and create appropriate training programmes that assist academic staff to improve their technical and pedagogical proficiency (Arabasz & Baker, 2003; Jones, 2004; Lion & Stark, 2010; Moser, 2007; Taylor & McQuigan, 2008). According to Al-Saleh (2000), Bower (2001), Templeton (2001), Arabasz *et al*. (2003), Arabasz & Beker (2003), Kosak *et al*. (2004), Jones (2004) and Wilson (2012), these training programmes should be characterised a following way:

- based on actual data regarding academic staff's needs;
- flexibility in the time and duration of training events;
- removing enrolment barriers such as lack of school support and continuity of daily responsibilities;
- delivering balanced technical and pedagogical training activities;
- taking into account the relevant training activities for different levels of adopters and;
- offering training activities in various formats, such as:
    - One-to-one (e.g. mentor, colleague, instructional designer, technical staff).
    - Face-to-face group meetings (e.g. workshops, training sessions).

- Online resources (e.g. self-paced modules, online course guides).
- Collaborative training approach.

Sanmamed *et al.* (2014) carried out a study (n=166) to explore professional development needs according to academic staff roles. They expressed their needs to obtain competencies to accomplish their roles as following:

- Social Role Competencies:
  - Supporting participation and engagement in e-learning environments.
  - Providing private and public feedback for learners' interactions.
  - Managing learners' discussions.
- Evaluator Role Competencies:
  - Informing learners about their progress.
  - Carrying out individual and group assessment.
- Managerial Role Competencies:
  - Planning and managing course activities.
  - Establishing courses regulations.
- Technological Role Competencies:
  - Using VLE effectively.
  - Ensuring learners' access to VLE.
  - Selecting, designing and creating educational media.
  - Communicating with technical support teams.

Alongside training programmes, institutions should offer technical and pedagogical support during the e-learning stages. This type of support would reduce academic staff's concerns of becoming a technician and having their attention distracted by technical issues instead of concentrating on instructional content (Baran, 2011; Templeton, 2001). According to Arabasz *et al*. (2003) institutions should consider providing continuous technical support an important part of the implementation strategy. Technical support takes different forms, according to Pirani *et al.* (2003), Taylor and McQuiggan (2008), Orr *et al*. (2009), Lion and Stark (2010) and Marshall (2010), including:

- reliable technical infrastructure;
- allocating work teams for technical responsibilities;

- establishing multimedia production units;
- setting up a help desk for consultations.

In order to address the required pedagogical support, many forms have been adapted according to Phipps and Merisotis (2000), Arabasz and Baker (2003), Fetzner (2003), Grant (2004) Restauri (2005), Bennett *et al*. (2006), Perreault *et al*. (2008), Lion and Stark (2010), Marshall (2010), Masoumi and Lindstrom (2012) and Hixon *et al*. (2012). These include:

- collaborative team-based approaches to develop effective cooperation between academic staff and the instructional designer;
- developing course authoring applications which include pedagogical templates;
- benchmarks and guides to ensure the quality of online courses.

In the Saudi context, Al-Mulhem (2013) investigated e-learning training needs and preferences from the point of view of academic staff in the School of Education at an eastern university in Saudi Arabia. The academic staff (n=69) gave the highest priority to providing training programmes to guide them in using ICT in teaching effectively, followed by training programmes to enhance the use of online assessment systems and basic e-learning technical skills. In terms of academic staff's preferences, they prefer training programmes that start at the beginning of a term. Also, short training programmes (2-4 weeks) were the most preferred in terms of length. Regarding delivery method, they stated that providing blended training programmes that are delivered both face to face and online is most desired. Finally, academic staff prefer instructor-led training programmes rather than adopting collaborative or self-directed approaches. Al-Zahrani (2015) refers to four dimensions to help higher education institutions in Saudi Arabia to provide effective ICT training programmes. These are: providing the logistical support required to ensure access to resources, providing training programmes based on needs and preferences assessments, providing profession-related training programmes that aim to enhance academic staff's skills in teaching and research, and providing training programmes that ensure flexibility in terms of time and forms.

Another major obstacle revealed is that academic staff are concerned about the increased workload which could be associated with online teaching (Al-Mulhem, 2013; Bolliger & Wasilik, 2009; Bower, 2001; Gannon-Cook *et al.*, 2009; Latoree, 2006; Panda & Mishra, 2007; Schifter, 2000; Wolcott, 1998). It is widely reported that online teaching activities are described as time-consuming where designing, developing, delivering and teaching e-learning courses requires more time than traditional teaching activities (Bender, Wood & Verdevoogd, 2004; Cavanaugh, 2005; Ocak, 2011; Tomei, 2006). This additional time becomes a cause for concern as it is difficult to be quantified, measured and classified as units (Bower, 2001), Furthermore, in some cases it is not taken into account when the school or department assigns work (Wolcott, 1998) which could have a possible effect on outcomes and the rewarded activities such as research (Bacow *et al*., 2012; McGill *et al*., 2014; McKenzie *et al*., 2000; Roberts, 2008).

Institutions should legalise policies to reduce the concerns associated with an increased workload (Stacey & Gerbic, 2008). These policies should be based on a realistic estimation of the additional time taken and according to Olcott and Wright (1995), Perreault *et al*. (2008) and Taylor and McQuiggan (2008) the following possible incentives should be offered and considerations made:

- time should be allowed for academic staff, particularly those who are teaching e-learning courses for the first time;
- workloads should be adjusted to take into account the introduction of teaching online courses;
- financial compensation should be given for the additional hours worked.

Furthermore, the literature points out that academic staff's engagement in e-learning initiatives will positively affect the presence of institutional support schemes which include a set of incentives as described by Al-Saleh (2000), Wolcott (2003), Naidu (2004), Lion and Stark (2010) and Graham *et al.* (2013) such as:

- schemes for rewards and compensation,
- appreciating and recognising the efforts of academic staff, and

- clarifying the impact of participation in initiatives on promotion and tenure processes.

To conclude, Table 2.14 summarises the barriers to the adoption of e-learning and the institutional support required for academic staff to overcome those barriers.

Table 2.14. Barriers of e-learning adoption and the suggested institutional support

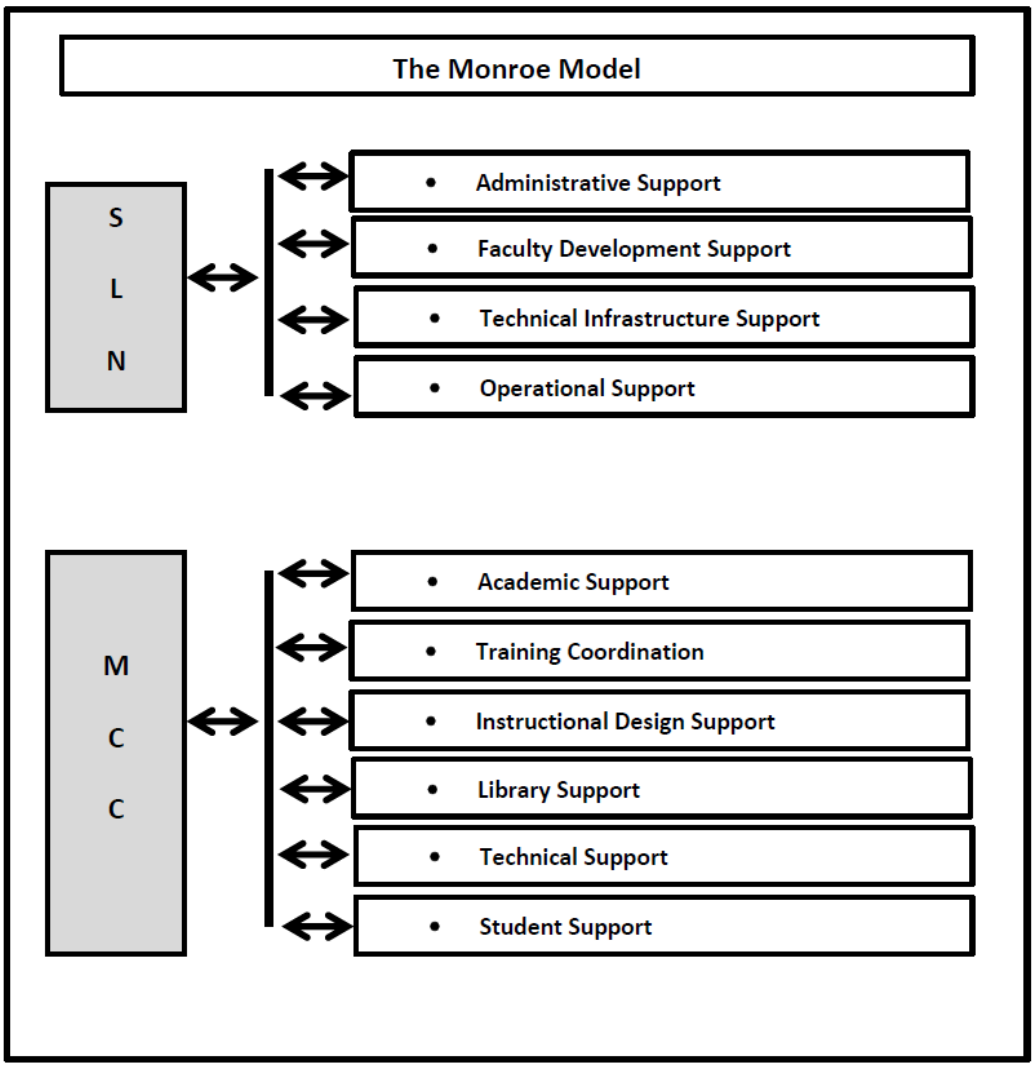
No.	Adoption Barriers	Required/Available support
1	Barriers related to academic staff's beliefs and attitudes toward online learning.	- Identifying the factors that form the attitude. - Encouraging academic staff to participate in developing e-learning initiative strategies. - Enlightening academic staff about the importance of e-learning technologies in addressing learners' needs. - Clarifying the impact of the participation in initiatives on the future careers of academic staff.
2	Lack of technical proficiency	- Technical training (e.g. face-to-face sessions, online courses)
		- Technical support (e.g. reliable technical infrastructure, help desk)
3	Lack of pedagogical knowledge	- Training in pedagogical issues (e.g. face-to-face sessions, online courses)
		- Support in pedagogical issues (e.g. cooperation with the instructional designer, authoring applications for online courses)
4	Concerns about additional workload	- Availability of adjusted workload/release time. - Rewarding additional workload. - Considering the time taken as a part of academic staff's workload.
5	Lack of institutional incentive	- Appreciating the academic staff's efforts. - Rewards and monetary compensation.

Frameworks have been developed to guide stakeholders and embed these initiatives in institutional culture by providing the required support. For example, Monroe Community College at State University of New York created a comprehensive team-based support model. The model consists of two main parts (Fetzner, 2003) (Figure 2.10):

- SLN: Centralised support system to cover the University (SUNY Learning Network, SLN) provides:
  - academic staff training support;

- 24/7 technical support.
- operational support (e.g. data collection/analysing), and
- administrative support (e.g. policy development).

Figure 2.10. Institutional Support Model Developed By Monroe Community College (Fetzner, 2003)

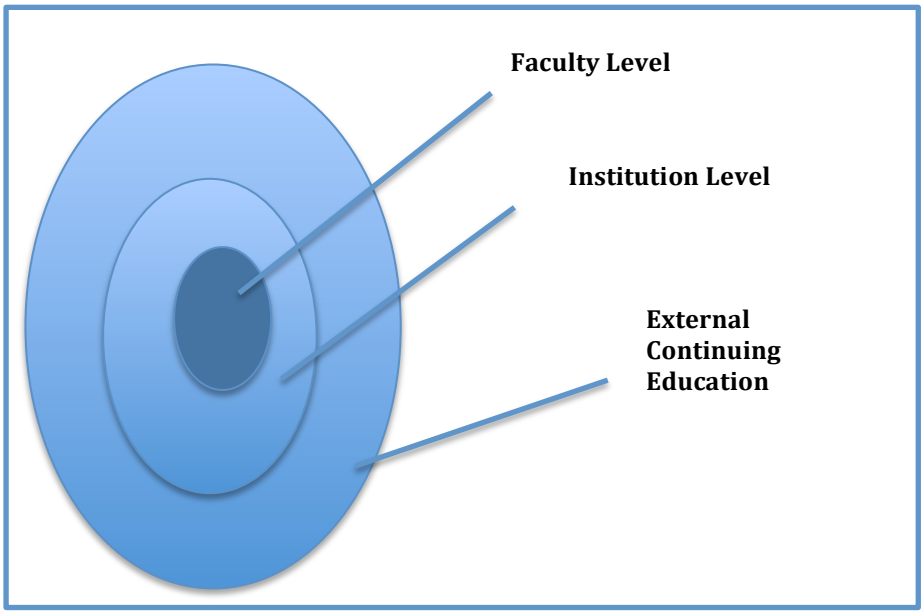


- MCC: specialised support system to address the needs of Monroe Community College (MCC) provides:
  - academic support (e.g. reviews and approves online courses);
  - training coordination (e.g. arranging and evaluating training programmes);

- instructional design support (e.g. one-to-one meetings to help the academic staff to adapt courses to be effective in online environments);
- library support (e.g. providing appropriate electronic and printed resources and guides and addressing ethical issues such as copyright and fair use policies);
- technical support (e.g. dealing with urgent difficulties about the technical infrastructure); and
- student services (e.g. assuring continuous learner accessibility).

Marek (2009) developed a model to create a support culture for institutions to support academic staff who teach online courses. The model suggests providing support on three levels: faculty, institution and external education level (Figure 2.11).

Figure 2.11. Institutional Support Model (Marek, 2009)

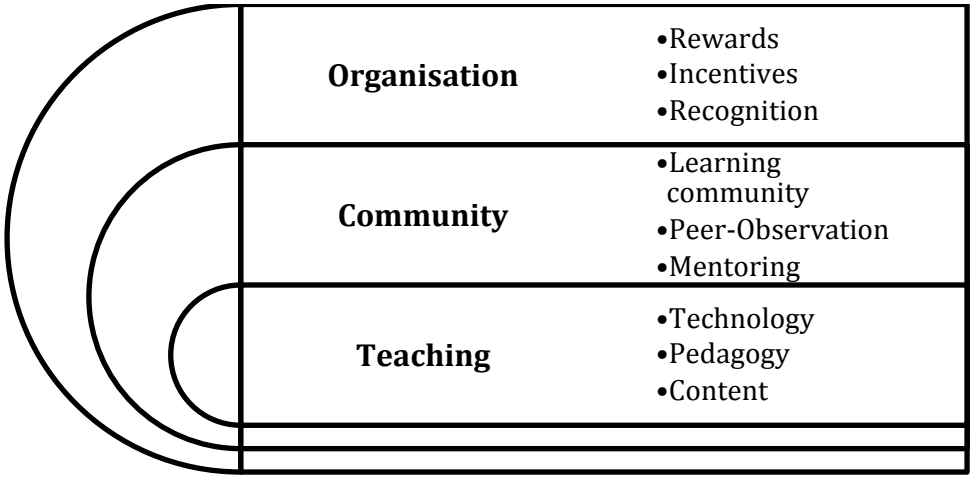


- **Faculty Level** includes enabling course release, monitoring and peer-support, support in providing certain content.
- **Institution Level** includes technical infrastructure, instructional design units, pedagogical support, technical training, incentives system and encouraging policies.
- **External Continuing Education** includes support and funding academic staff attending conferences and training courses with external providers.

Baran (2011) presents a model to assist higher education institutions in designing online teacher support programs. The model identified three levels of support (Figure 2.12);

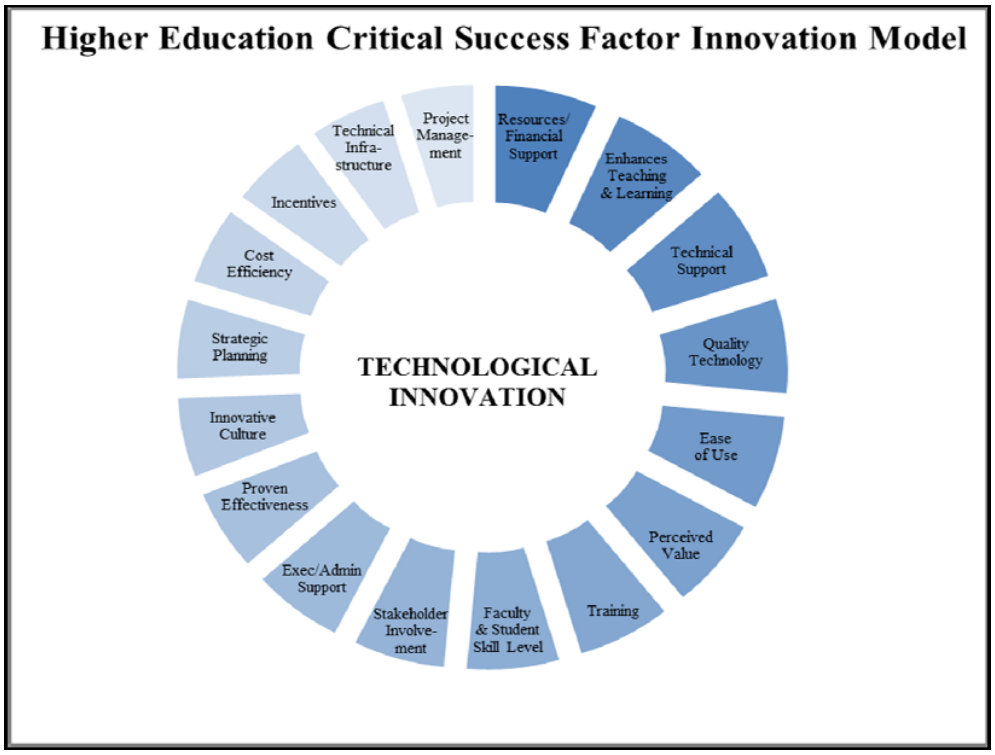
- **Teaching Level,** which includes:
  - Providing technical support during developing and delivering online courses.
  - Providing pedagogical support to utilise effective online teaching strategies (e.g. learner-based learning strategies).
  - Assisting teachers to select and integrate the appropriate online tool and learning strategies for a specific content.
- **Community Level,** which includes:
  - Facilitating and customising support by enabling one-to-one consultations and observation.
  - Establishing formal and informal groups within faculties or external organisation to share ideas and practices and to run discussions on common online teaching topics.
- **Organisation Level ,** which includes:
  - Providing support at the administrative level to assure teachers of the institution leadership's commitment and positive attitude towards e-learning. This level of support includes providing financial incentives and release time to develop online courses.

Figure 2.12. Institutional Support Model for Online Teacher Support (Baran, 2011)



Another model proposed by Dennison (2013) is based on a survey of academic staff and IT leaders at a southern regional state university in the United States to explore the critical success factors of technological adoption (Figure 2.13).

Figure 2.13. Higher Education Critical Success Factor Innovation Model (Dennison, 2013)



The model suggested seventeen success factors as follows:

- financial resources and support
- technical support
- availability of technological Infrastructure
- cost efficiency
- ease of use
- innovation which enhances teaching and learning
- top management level support
- incentives/rewards/time for innovation
- innovative culture/collaborative environment
- perceived value/addresses needs
- professional development and training

- project management
- proven effectiveness
- quality, reliability and flexibility of technology
- skill level and commitment of faculty/students
- stakeholder involvement
- strategic planning and governance.

To conclude, the literature indicates that the rapid growth in e-learning initiatives in higher education institutions should be associated with comprehensive supportive practices (Walcott, 2003) that work to address technical, pedagogical and organisational challenges and convert them into motivators that will assist academic staff to overcome their concerns and to achieve high levels of satisfaction as an essential component of implementation strategies.

2.5. Virtual Learning Environments (VLEs)

Higher education institutions have been investing heavily in adopting Virtual Learning Environments (VLEs) (Lonn & Teasley, 2009; Weaver *et al.*, 2008). These learning platforms have become an important component in universities' strategies, not only because they offer administrative advantages, but also because they create and facilitate effective and fixable learning and teaching environments (Klobas & McGill, 2010; Mircea, 2012). This growth can be seen in the statistics. For example, 2010 and 2012 surveys of Technology Enhanced Learning for higher education in the UK pointed out that 100% of the institutions surveyed had adopted a certain level of VLE (Browne *et al.*, 2010; Walker, Voce & Ahmed, 2012).

Before reviewing the definitions of VLE, it is worth referring to the related term, Learning Management Systems (LMS). Scholars have adopted different approaches to clarify the relationships between these two terms. Bach, Haynes and Smith (2007) state that LMS provides learners with more flexible and interactive content. Dobozy and Reynolds (2010) argue that the difference in language used to describe LMS and VLE arises from the degree of complexity of these platforms. Therefore, they suggest a metaphorical relationship between LMS and VLE according to their complexity in which they describe LMS as a "supermarket" and VLE as an "airport". Meanwhile the most common approach utilised by scholars is to use LMS and VLE interchangeably (e.g. Cavus, 2011; Costa, Alvelos & Teixeira 2012; De Smet, Bourgonjon, De Wever, Schellens & Valcke, 2012; Lameras, Levy, Paraskakis & Webber, 2012; Martín-Blas & Serrano-Fernández, 2009; Yasar & Adiguzel, 2010). Pina (2010) states that VLE is widely used in the UK, Europe and Asia, whereas LMS is more common in North America.

According to Mircea (2012) many definitions have been developed for VLE which emphasise the main aspects: the technical nature of VLEs, the features of these platforms and the functions that are achieved by these features. Table 2.15 reviews some common definitions of VLE.

Table 2.15. VLE's Definitions

N	Definition	VLE's nature	VLE function
1	Minshull (2002)	Piece of software	- Providing integrated online learning environment to: • Organise and control learner access. • Track learners' progress. • Provide learning resources. • Promote communication.
2	Dillenbourg *et al.,* (2002)	Designed information space	- Promoting educational and social interactions. - Providing full e-learning courses or enriching classroom activities (Blended Learning).
3	Paulsen (2003)	Learning platforms	- Developing electronic learning courses. - Enabling e-assessment. - Managing results and progress.
4	Naidu (2006)	Software applications. Integrated tools	- Enabling online learning.
5	Yasar & Adiguzel (2010)	e-learning infrastructure	- Delivering blended courses. - Promoting learner collaboration. - Tracking and reporting learner progress.
6	Cole and Foster (2007)	Web-based applications	- Creating online courses. - Providing access to learning materials
7	McGill & Hobbs (2008)	Information system	- Facilitating e-learning. - Storing learning materials. - Supporting communication.
8	Brenton (2009)	Web-based software	- Running course modules online. (Fully Online or Blended Learning)
9	Lonn & Teasley (2009)	Web-based systems	- Facilitating sharing of learning materials. - Organising administrative activities. - Promoting communication.
10	Klobas & McGill (2010)	Information system	- Facilitating teaching, learning and communication activities.
11	Cavus (2011)	Platforms	- Enabling online course management. - Tracking learning progress. - Promoting communication. - Administrative functions (e.g. registration, scheduling)
12	Cigdemoglu, Arsalan & Akay (2011)	e-learning platforms	- Creating accessible course materials.
13	Lameras et al., (2012)	Electronic means	- Information transfer. - Clarification of concepts. - Sharing ideas. - Supporting collaboration.
14	Sanchez, Hueros & Ordaz (2013)	Electronic information systems	- Supporting learning process. - Providing administrative support.

The definitions presented in Table 2.15 cover the functions which are sought by universities when they adopt a VLE. These functions can be summarised as:

creating, authoring, delivering and displaying content; enabling learning resources; enabling assessment and communication tools; managing learners' registration; controlling learners' access and tracking their progress (Watson & Watson, 2007, Reigeluth, Watson, Watson, Dutta, Chen & Powell, 2008; Yildirim, Reigeluth, Kwon, Kageto & Shao, 2013) .

The above-stated functions can be fulfilled by a set of features (or tools) provided by the VLE. Despite the availability of a wide range of these platforms such as Open Source Platforms (e.g. Moodle), commercial VLEs (e.g. Blackboard) or VLEs developed in house by some universities, these VLEs include a common pattern of tools. These tools can be divided into the following main categories (Dabbagh & Kitsantans, 2005; Minshull, 2004):

- *Content tools* that facilitate authoring, delivering, sharing and storing content.
- *Assessment tools* that allow evaluating learners' work, providing feedback and managing assignments.
- *Communication tools* that promote synchronous and asynchronous communications.
- *Administrative tools* that allow teachers to control learners' registration and to track their progress.

According to O'Leary (2002) the use of VLE tools can be simple or complex. In simple use teachers use the VLE to announce a course or to provide text-based materials. Meanwhile, complex use involves utilising tools to provide complete integrated and interactive learning activities. Malikowski, Thompson and Theis (2007) rank VLE tools according to their adoption rate into three levels: level 1 includes the most used tools, "transmitting course content tools"; level 2 includes "communication and assessment tools" and, finally, level 3 includes less frequently used tools that aim to create a full online course.

Many factors determine the adoption of these tools, such as the degree of a tool's complexity, the nature of the discipline (e.g. applied or pure) and teacher-related factors, such as personal innovativeness, computer efficiency and attitude toward online teaching. Smith, Heindel and Torres-Ayala (2008) looked at the nature of the course, whether it is an applied or pure discipline, as an important

factor affecting the choice of tools to be used. They found significant differences in terms of utilised tools between four investigated disciplines. For example, academic staff in applied disciplines (e.g. engineering) tend to use emails and documents to upload tools such as Dropbox to allow them to receive written assignments and projects. On other hand, academic staff in pure disciplines (e.g. social sciences) use the Test and Pool tools significantly more than those in applied disciplines. Table 2.16 summarises studies that aimed to identify the most commonly-used VLE tools.

Table 2.16. Studies That Aimed To Identify Most VLE Used Tools

N	Study	Study Population	Adopted VLE	Most adopted tools	Function
1	Morgan (2003)	Academic staff at the University of Wisconsin System, USA	- BlackBoard - WebCT - LearningSpace - FirstClass - Web Course in a Box. - Prometheus.	Course Documents	Content Management
				Announcements	Administrative
				Syllabus	Administrative
				Gradebook	Administrative
2	Woods, Baker & Hopper (2004)	Academic staff at 10 Higher Education Institutions in Midwest of USA	- BlackBoard	Emails	Administrative
				Supplemental Readings	Content Management
				Syllabus	Administrative
				Gradebook	Administrative
3	Harrington, Staffo & Wright (2006)	Academic staff at a South-eastern research university in USA	- WebCT	Discussion Board	Communication
				Tracking Tools	Administrative
				Syllabus	Administrative
				Upload Content	Content Management
4	Malikowski Thompson & Theis (2006)	Academic staff at a university in Midwest of USA	- Desire2Learn	Content Files	Content Management
				Announcements	Administrative
				Gradebook	Administrative
				Schedule	Administrative
5	Lonn & Teasley (2008)	Academic staff at a research university in Midwest of USA	- WebCT	Resources	Content Management
				Announcements	Administrative
				Assignments	Assessment
				Syllabus	Administrative

Increasing VLE adoption basically arises from its role in the expected advantages that should be achieved by utilising ICT to enhance administrative, teaching and learning practices (Naveh, Tubin & Pliskin, 2010; Sanchez, Hueros & Ordaz, 2013). ICT gains its importance from its capability to facilitate access to vast, updated and diverse information resources and to create new forms of

communication (Conole *et al*., 2004) which lead to active, flexible, collaborative pedagogies (Laurillard, 2008) to suit each individual's learning style (Fee, 2009). Furthermore, it enhances learning by providing a creative and interactive learning environment (Lopez-Peres, Perez-Lopez & Rodriguez-Ariza, 2011) to increase learners' engagement and performance (Pemberton, Borrego & Cohen 2006) and enable them to develop self-directed learning opportunities (Green *et al.*, 2006). Nevertheless, it should be noted that the benefits of VLEs are not fulfilled as soon as they are installed (Lonn & Teasley, 2009; Yasar & Adiguzel, 2010). Instead, their success relies on interrelated factors such as institutional support, teaching practices, learners' and teachers' perceptions (De Smet et al., 2012; Ozkan & Koseler, 2009). Passey and Higgins (2011) stated that:

> ***A learning platform is not a piece of computer software designed to improve teaching and learning in some particular aspect of the curriculum or in support of a particular pedagogy. Instead, it is a collection of tools brought together to improve a range of aspects of the workings of a school, university or other educational organisation.***

According to Carvalho, Areal and Silva (2011), despite the rapid adoption of these platforms, concerns have been raised about their effective implementation in teaching and learning activities. These concerns are related to teachers' tendencies to transfer their teaching practices in traditional teaching to the VLE teaching setting (Blin & Munro, 2008; Naveh et al., 2010). This limitation can be shown by the extensive use of administrative tools (i.e. sending announcements to learners) or sending text-based content materials and ignoring more interactive tools (Blin & Munro, 2008; Carvalho et al., 20011; Kemp & Livingstone, 2006; McGill & Hobbs, 2008). Moreover, concerns have been reported regarding the lack of empirical evidence on the impact of the VLE on learning outcomes (Klobas & McGill, 2010).

In general, the reported lack of effective teaching practices in VLEs cannot be investigated separately from the comprehensive context when ICT is adopted in teaching and learning settings. Thus, issues such as the factors which have caused ICT's failure to achieve the required benefits and the emerging

pedagogical, social and managerial teacher roles in ICT teaching environments are discussed in detail in section two "ICT's impacts on teaching".

Despite the above argument about the doubts of effective VLE adoption, the literature indicates that the use of VLEs has had a significant impact on different dependant variables such as learners' outcomes, satisfaction and attitudes, as summarised in Table 2.17.

Table 2.17. VLE Impacts On Some Dependant Variables

N	Study	Study Population	Study's Objectives	Adopted VLE	Study Results
1	Green, Weaver, Voegeli, Fitzsimmons, Knowles, Harrison & Shephard (2006)	Students at University of Southampton	Investigate Nursing students' experience of VLE.	Blackboard	-Using the VLE increased their satisfaction. -VLE provided appropriate learning resources.
2	De Leng, Dulmans, Muijtjens & van der Vleuten, (2006)	Students at Maastricht University, The Netherlands	Investigate VLE ability to promote group interaction	Blackboard	-VLE supports learner-learner and Learner- teacher interactions
3	DeNeui & Dodge (2006)	Students at a university in Northwest of USA	VLE impact on the students' performance on Psychology course.	Blackboard (Blended Learning)	-Using VLE has improved students' final score.
4	Cavus (2007)	Students at a Cyprus university.	- Impact of using a collaborative tool on the students' performance on a Computer course.	Moodle NEU-VLE (Developed VLE by the author)	- Using the collaborative tool has a positive significant on students'' scores.
5	Palmer, Holt & Bray (2007)	Students at Deakin University, Australia	Investigating impact of online discussion tool on students' learning.	Blackboard	-Students' participation in VLE discussions increased significantly (compared with their participation in traditional discussions). -Active participation in discussions led to an improved final mark.
6	Campbell, Gibson, Hall, Richards & Callery (2008)	Postgraduate Students at Manchester University, in the UK	Comparing students' outcomes among 2 groups (Online vs Face to Face group)	WebCT	-Students who used online discussion achieved higher scores than face to face students.
7	Liaw (2008)	Students at a university in Central Taiwan	Investigating learners' attitudes toward e-learning.	Blackboard	-VLE quality increased learner satisfaction level and their attitudes toward e-learning
8	Martín-Blas & Serrano-Fernández (2009)	Students at a Spanish university.	VLE impact on the students' performance on Physics course.	Moodle (Blended Learning)	-Students who used VLE achieved higher score.
9	Carvalho, Areal & Silva (2011)	Students at University of Minho, Portugal	Investigating students' perceptions about 2 VLEs	Blackboard Moodle	VLEs facilitate access to learning materials. VLEs have a positive impact on learning. Helps to keep up with the coursework. Helps to organise studying activities.
10	Cigdemoglu, Arsalan & Akay (2011)	Academic Staff at a Turkish university	Investigating experience of new academic staff users of VLE .	Moodle	-VLE is an appropriate tool for providing feedback. - VLE meets their expectations.
11	Pulford (2011)	Students at Leicester	Investigating impact of using discussion	Blackboard	- Student who used VLE achieved significantly higher scores than

N	Study	Study Population	Study's Objectives	Adopted VLE	Study Results
		University, in the UK	boards on students' learning. Psychology course		students who did not use the VLE.
12	Stricker, Weibel & Wissmath (2011)	Students at University of Bern, Switzerland	Impact of VLE on the students' performance on Psychology course.	Developed VLE	-Heavy VLE users achieved higher scores than non-users.

One of the most critical issues that should be addressed by institutions when they adopt VLEs is they should establish comprehensive criteria for selecting and evaluating the VLE. These criteria will allow an institution to support their decision to choose a specific VLE from the many available in the market (Cavus, 2009; Kim & Lee, 2007; Mueller & Strohmeier 2011).

A number of studies have attempted to identify those VLE characteristics that contribute to making these platforms more adoptable by learners and academic staff. In general, theories and models that explain the factors which influence the decision to adopt a particular VLE do not differ completely from the factors that affect the decision to adopt ICT. This section will mainly focus on studies that have investigated the technical characteristics of the VLE that facilitate its adoption. A more detailed review of theories related to the decision to adopt ICT in teaching (e.g. TAM, Diffusion of Innovation, UTAUT, the DeLone and McLean Model, etc.), individual factors (e.g. attitude, personal innovativeness, computer efficiency, etc.), technical factors (e.g. ease of use, system quality, etc.), social factors (e.g. subjective norms) and institutional factors (e.g. support, policies, etc.) can be found in section three "*ICT's adoption theories and models*".

Employing highly cited models and theories in the field such as the Technology Acceptance Model (TAM) and the McLone and McLean model is considered a common approach to investigating the impact of VLE characteristics on academic staff and students' attitude, intention to use and adopting these platforms. For example, De Smet *et al.* (2012) investigated impacts of individual factors (teacher experience, personal innovations), TAM's components (perceived ease of use, perceived usefulness), social factors (subjective norms) and institutional factor (ICT support) on secondary teachers' decisions to adopt VLEs. The study revealed that *perceived ease of use*, *perceived usefulness*, *ICT support*, *experience* and *subjective norms* all have a positive effect on two levels of VLE use, namely

the informational level (e.g. using calendar, announcement tools to provide general information about the course) and communicational level (e.g. availability of interactive synchronous or asynchronous communication). Another study employing TAM was conducted by Sanchez *et al.* (2013) to explore the effect of students' *perceived ease of use* and *perceived usefulness* on their attitudes towards using VLEs. The study found that these factors have a significant positive effect on students' attitudes to using VLE. Mueller and Strohmeier (2011) conducted a literature review to present VLE characteristics that aimed to achieve successful VLE implementation. They divided these characteristics into two main categories namely, *system-related* characteristics (e.g. perceived quality, perceived usability, system functionality, reliability, system accessibility, system adaptability, system interactivity) and *information-related* characteristics (e.g. content quality, course attributes, information relevance). Kim and Lee (2007) proposed and validated an evaluation model to increase possibilities of VLE adoption. Their evaluation model consists of seven dimensions. These dimensions are *Organisational demand* (e.g. VLE's appropriateness for learning and training purposes), *Instructional management* (e.g. user accessibility, ease of course management), *Interaction* (e.g. promoting learner-teacher interaction), *Information guidance* (e.g. providing online assistance), *Screen design* (e.g. interface design, ease of navigation), *Technology* (e.g. lack of system error, VLE's capacity) and *Evaluation* (e.g. variety of assessment tools, store and displaying tests results).

Ozkan and Koseler (2009) suggest a model which consists of six individual, technical and institutional dimensions to evaluate VLEs. The findings of this study support the positive impact of the dimensions on learners' satisfaction. The impact of the dimensions are ranked according to statistical data as follows: *Learner's attitudes* toward using the VLE, *Instructor quality* (e.g. teaching style, teacher characteristics, teacher's technical ability), *System quality* (e.g. interface screens, user-friendly interfaces, personalisation of learning process), *Content quality* (e.g. rich up-to-date content, additional resources, interactive content), *Service quality* (e.g. technical support), *Supportive issues* (e.g. institution's culture, peer influence).

Wang, Doll, Deng, Park and Yang (2013) indicate that *configurability* as a technical characteristic of VLEs has a positive influence on the decision of academic staff to adopt effective teaching practices through VLE. Configurability means VLE's ability to enable academic staff to make the required editing and modifications to the course. They identify three types of configurability, namely, interface configurability, interaction configurability and content configurability. Younie and Leask (2013) refer to *transferability* as another technical characteristic of VLEs, required by universities, to show to what extent user skills are transferable from a particular VLE to another.

Table 2.18 summarises the studies that investigate the characteristics of the VLE that facilitate its adoption. This review mainly focuses on technical characteristics; more details of the individual, social and institutional characteristics are reviewed in section three "*ICT adoption theories and models*".

Table 2.18. VLE Characteristics That Facilitate its Adoption

N	The Study	The Study's population	VLE's Characteristics (Or independent variables)	Dependant Variables
1	Kim & Lee (2007)	e-learning experts in South Korea	- Organisational demand - Instructional management - Interaction - Information guidance - Screen design - Technology - Evaluation	- Positive impacts on increasing adoption of VLE
2	Ngai, Poon & Chan (2007)	Students at a university in Hong Kong	-Perceived ease of use - Perceived usefulness	-Positive impact on students' attitudes towards use of VLE. -Positive impact on students' usage of VLE.
3	Liaw (2008)	Students at a university in central Taiwan	-System quality	- Positive impact on learners' satisfaction.
4	Ozkan & Koseler (2009)	Students at Brunel University, the UK	- Learners' attitudes - Instructor quality - System quality - Content quality - Service quality - Supportive issues	- Positive impact on learners' satisfaction.
5	Mueller & Strohmeier (2011)	Literature Review	- System-related characteristics (e.g. perceived quality, perceived usability, system functionality, reliability .etc.) - Information-related characteristics (e.g. content quality, course attributes, information relevance).	Not tested in the study
6	De Smet *et al.* (2012)	Teachers in Secondary schools, Belgium	-Perceived ease of use -Perceived usefulness -ICT support	- Positive impact on Informational level of use of VLE.

			- Experience -Subjective norms	- Positive impact on Communicational level of use of VLE.
7	Escobar-Rodriguez, Monge-Lozano (2012)	Students at a Spanish public university	-Perceived ease of use -Perceived usefulness -Training	-Positive impact on students' intention to use VLE. -Indirect positive impact on students' usage of VLE.
8	Sanchez *et al.* (2013)	Students in University of Helva, Spain	-Perceived ease of use -Perceived usefulness	-Positive impact on students' attitudes towards use of VLE.
9	Wang *et al*., (2013)	Academic staff in 4 Midwestern universities in USA	-Configurability	-Positive impact on using VLE. -Positive impact on applying effective teaching practices.
10	Younie & Leask (2013)	Literature Review	-Transferability	- University decision

In the Saudi context, studies primarily focus on students or academic staff attitude toward VLEs. For example, Hussein (2011) investigated academic staff's attitudes toward the VLE. Their study targeted academic staff in six universities in Saudi Arabia which have adopted JOUSOUR VLE which is designed and adopted by the National Centre for E-Learning in Saudi Arabia (NCEL). The study revealed that academic staff (n=90) have a positive attitude toward the VLE. The findings did not find significant differences in academic staff's attitude due to gender or between the investigated academic disciplines. However, there were significant differences according to the rank of academic staff (professor, associate professor and assistant professor). Asiri *et al.* (2012) carried out another study to investigate academic staff's attitudes toward the VLE (JOUSOUR). The large-scale study (n=454) conducted in four public universities in Saudi Arabia concluded that academic staff have a positive attitude toward the VLE. They consider that platforms provide viable teaching and administrative tools which assist them to achieve learning objectives. Also, the findings reported a positive relationship between VLE utilisation and academic staff's attitudes.

In conclusion, the rapid adoption of VLEs among higher education institutions in order to create effective learning environments will face considerable obstacles to achieving the institution's objectives. Successful VLE implementation requires

effort from institutions in selecting and evaluating the adopted VLE. Furthermore, institutions are required to identify the factors that limit obtaining the maximum opportunities of VLEs such as failure of academic staff to use pedagogical approaches and develop appropriate technical skills to adopt these platforms effectively.

2.6 Summary

This study aims to investigate actual and desired institutional support as an important factor in the successful implementation and continuation of e-learning (McGill *et al.*, 2014). Thus this chapter has provided a review of the related literature investigating the impact of ICT on higher education institutions and teaching, the theories and models that explain academic staff's behaviour and factors that facilitate or prevent ICT adoption. Then it reviewed institutional support as an important factor in minimising academic staff's concerns about the required technical and pedagogical teaching practices and skills in e-learning environments. Finally, it reviewed VLEs as a common platform utilised to provide e-learning by institutions.

As can be seen from the literature review sections, ICT offers opportunities to face higher education challenges. However, studies indicated limitations in ICT's effectiveness on learning outcomes. This limitation is partly caused by the replication of traditional teaching practices in e-learning environments (Bernard et al., 2004), focusing on technology rather than pedagogy (Schmid *et al.*, 2014) which require academic staff to adjust their roles and practices by developing the appropriate technical and pedagogical skills (Wildflower, 2010). Thus, HEIs are required to form comprehensive procedures that ensure high participation from academic staff in e-learning initiatives. Such procedures include raising awareness of how ICT can address their strategic vision (Kubler & Sayers, 2010), bridging the gap between policies and actual practices (Lisewski, 2004), creating the desired organisational change through leadership's commitment (Marshall, 2010) and enabling required support such as technical and pedagogical support and training and well-established incentive structure as essential factors that motivate academic staff to facilitate ICT adoption.

Chapter Three : The Methodology

Chapter Three: The Methodology

3.1. Introduction

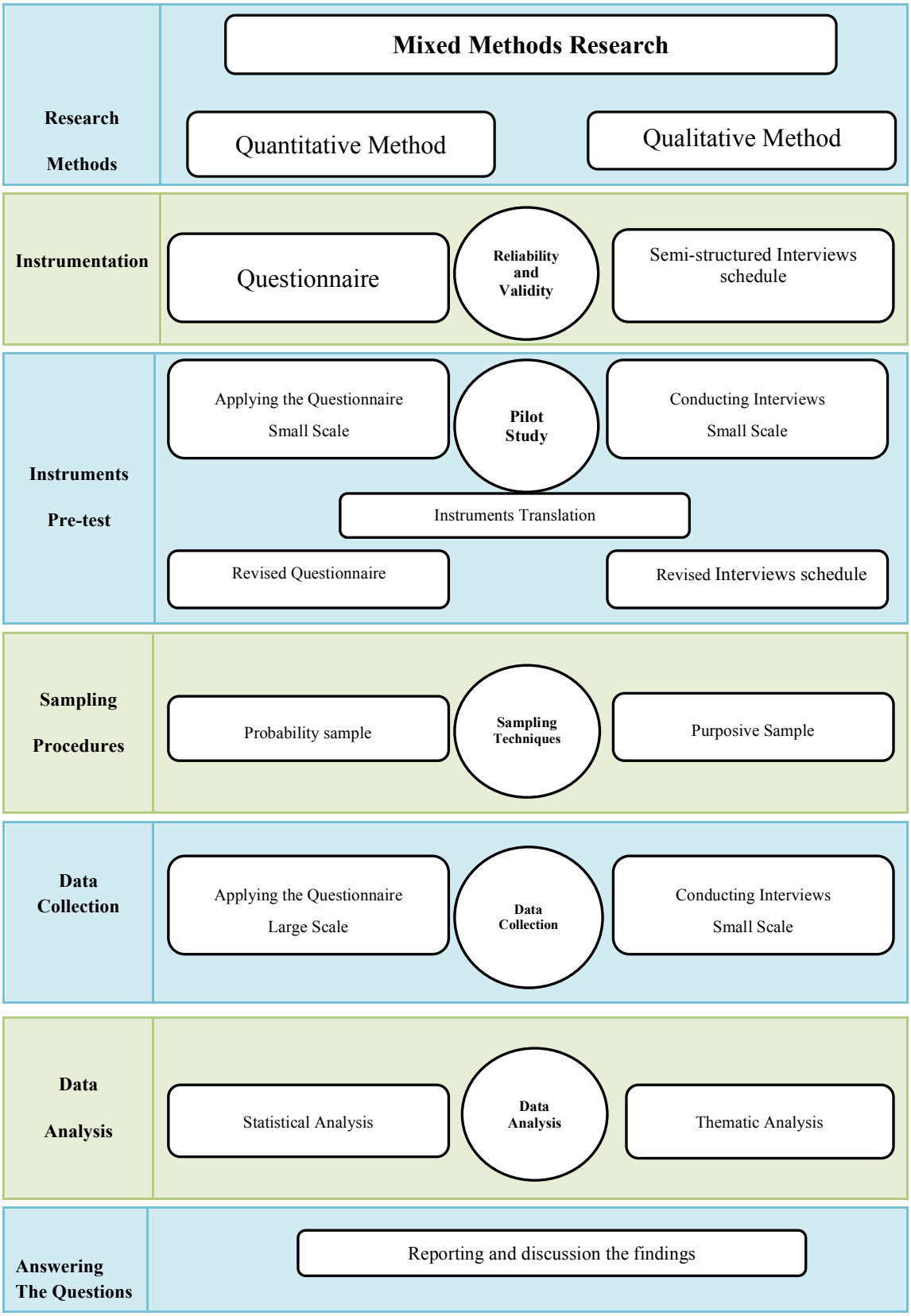
The present study aims to investigate the perceptions of academic staff in Saudi Arabia about actual institutional support (the support which is already provided) and desired institutional support (the support which should be provided) by their institutions to motivate them to adopt Virtual Learning Environments. In addition, the study seeks to find out if there are gaps and significant differences between actual and desired institutional support. Furthermore, it aims to examine the differences in academic staff's rating of actual and desired institutional support according to their university, faculty, gender, main purpose of using VLEs and attitude toward participation in e-learning.

This chapter provides a detailed description of the procedures that have been followed to address the study's questions (Figure 3.1), beginning by presenting the research questions. Since the study employed mixed methods research, the chapter describes quantitative and qualitative methods. In particular, a detailed description is provided of the quantitative and qualitative data collection instruments utilised, as well as the sampling strategies, data collection procedures, ethical considerations and data analysis methods. Furthermore, the procedures used to ensure and enhance data reliability, validity and trustworthiness are described.

3.2. Research Questions

The present study aims to investigate the academic staff's evaluation of the actual and desired institutional support provided by their institutions to motivate them to participate in e-learning initiatives, especially adopting Virtual Learning Environments (VLEs). Additionally, it aims to compare between actual and desired institutional support. Furthermore, the study aims to find out if there are statistically differences in actual and desired institutional support according to academic staff's university, faculty, gender, main purpose of using VLEs and attitude toward participation in e-learning.

Figure 3.1. The Research Design



Institutional support in this study is categorised into seven main types namely, supportive institutional practices, technical support, pedagogical support, technical training, pedagogical training, flexibility of training programmes and institutional incentives.

Consistent with the above-mentioned objectives, the following questions are posed:

Question 1: From the perceptions of academic staff in Saudi Arabia, to what extent is institutional support provided by their universities to motivate them to adopt VLEs? (Seven sub-questions)

Question 2: Are there statistically significant differences in academic staff's perceptions about actual institutional support according to: university, faculty, gender, purpose of using the VLE and attitude towards e-learning? (Five sub-questions)

Question 3: From the perceptions of academic staff in Saudi Arabia, what is the *desired* institutional support that should be provided by their universities to motivate them to adopt VLEs? (Seven sub-questions)

Question 4: Are there statistically significant differences in academic staff's perceptions about *desired* institutional support according to: university, faculty, gender, purpose of using the VLE and attitude towards e-learning? (Five sub-questions)

Question 5: Are there statistically significant differences between the *actual* and *desired* institutional support that is or should be provided to motivate the adoption of VLEs in the perception of the academic staff members of Saudi universities? (Seven sub-questions)

Question 6: Are there statistically significant differences between the actual and desired institutional support for each sub-variable of university, faculty, gender, purpose of using the VLE and attitude towards e-learning? (Five sub-questions).

The following Table 3.1 provides a summary of the research questions and sub-questions.

Table 3.1. Summary Of The Research Questions And Sub-Questions

N	Question	Sub-Question objective
	To what extent is	Q1.1 Actual supportive institutional practices

N	Question	Sub-Question objective
Q1	**institutional support provided by their universities to motivate them to adopt VLEs?**	Q1.2 Actual technical support
		Q1.3 Actual pedagogical support
		Q1.4 Actual technical training.
		Q1.5 Actual pedagogical training.
		Q1.6 Actual training programme flexibility.
		Q1.7 Actual institutional incentives.
Q2	**Are there significant differences in academic staff's perceptions about actual institutional support?**	2.1. Differences in actual institutional support according to university.
		2.2. Differences in actual institutional support according to faculty.
		2.3. Differences in desired institutional support according to gender.
		2.4. Differences in actual institutional support according to academic staff's main purpose of using VLE.
		2.5. Differences in actual institutional support according to academic staff's attitude toward e-learning.
Q3	**What is the desired institutional support that should be provided by their universities to motivate them to adopt VLEs**	Q3.1 Desired supportive institutional practices.
		Q3.2 Actual technical support
		Q3.3 Desired pedagogical support
		Q3.4 Desired technical training.
		Q3.5 Desired pedagogical training.
		Q3.6 Desired training programme flexibility.
		Q3.7 Desired institutional incentives.
Q4	**Are there significant differences in academic staff's perceptions about desired institutional support?**	4.1. Differences in desired institutional support according to university.
		4.2. Differences in desired institutional support according to faculty.
		4.3. Differences in desired institutional support according to gender.
		4.4. Differences in desired institutional support according to academic staff's main purpose of using VLE.
		4.5. Differences in desired institutional support according to academic staff's attitude toward e-learning.
Q5	**Are there significant differences between the actual and desired institutional support that is or should be provided to motivate the adoption of VLEs?**	Q5.1 Differences between actual and desired supportive institutional practices.
		Q5.2 Differences between actual and desired technical support
		Q5.3 Differences between actual and desired pedagogical support
		Q5.4 Differences between actual and desired technical training.
		Q5.5 Differences between actual and desired pedagogical training.
		Q5.6 Differences between actual and desired training programme flexibility.
		Q5.7 Differences between actual and desired institutional incentives.
Q6	**Are there significant differences between the actual and desired institutional support for each sub-variable?**	Q6.1 Differences between actual and desired institutional support for each university.
		Q6.2 Differences between actual and desired institutional support for each faculty.
		Q6.3 Differences between actual and desired institutional support for each gender.
		Q6.4 Differences between actual and desired institutional support for each category of main purpose of using VLE.
		Q6.5 Differences between actual and desired institutional support for each category of attitude toward e-learning.

3.3. Research design

The present study employs two methodological approaches in designing data collection instruments, sampling procedures and data analysis. In particular, mixed methods of research design are utilised to address the study objectives.

The last few decades have witnessed an increasing debate between proponents of the positivism paradigm which is mainly represented by the quantitative research approach and constructivism which is embodied by the qualitative research approach (Tashakkori & Teddlie, 1998, Teddlie, Tashakkori & Johnson, 2008). The differences between these two paradigms emerge from the contrast in assumptions and beliefs about ontology (concerned with the nature of reality and truth), epistemology (concerned with knowledge), axiology (concerned with values and ethics), and generalisation (Ary, Jacobs & Sorensen, 2010; Rocco, Blis, Gallagher & Perez-Prado, 2003). A pragmatic paradigm was adopted to combine the quantitative and qualitative approaches in order to address a single research objective. Johnson and Onwuegbuzie (2004) state that the emergence of the pragmatic paradigm was integrated and the compromise approach was facilitated by the agreement aspects and overlapped techniques between quantitative and qualitative research methods as they follow similar procedures in describing collected data and emphasising the reliability and validity of used measures.

The pragmatic approach is represented by the mixed methods research approach which is defined by Creswell and Plano Clark (2007) as follows:

"Mixed methods research is a design for collecting, analysing and mixing both qualitative and quantitative data in a study in order to understand a research problem"

The combination of two methods for designing and sampling procedures and collecting and analysing data has potential advantages in achieving a deep, comprehensive understanding of a study's problems as this methodological design invests strong points of quantitative and qualitative methods and offsets the weakness of each method (Onwuegbuzie & Leech, 2004; Tashakkori & Teddlie, 1998). For example, a quantitative method offers sturdy data when they are based on a representative sample. However, it has limitations in providing

contextual understanding for the investigated problem (Bamberger, Rao & Woolcock, 2010; Plano Clark, Creswell & Green, 2008). Furthermore, using various approaches to collect data offers extensive information about a study's problem and reduces a researcher's bias which could arise from using a single data collection instrument (Patton, 2002). Onwuegbuzie and Leech (2007) state that mixed method designs provide researchers with the required flexibility for gathering and analysing data and reporting the findings.

Plano Clark *et al*. (2008) identify eight possible purposes for conducting a mixed method research which are summarised in Table 3.2:

Table 3.2. Purposes For Conducting A Mixed Method Research (Plano Clark *et al*., 2008)

	MMR purpose	Summary of using
1	Comparing Qn an Ql results	MMR is used by a researcher to determine and obtain a supported conclusion by using two sources of data (e.g. questionnaire and interview).
2	Validating the data	MMR is used when a researcher aims to validate questionnaire results by adding open-ended questions which could provide useful information to prove the quantitative data.
3	Enhancing the experimental studies.	MMR is used when an experimental researcher wants to employ more than a single dataset to obtain sufficient information and enhancing findings' reporting.
4	Enhancing the mechanism of correlation design.	MMR is used when a researcher is using qualitative data to investigate a relationship's nature between the variables (which was identified by quantitative data analysing) .
5	Explaining the results	MMR is used when a researcher collects and analyses data by a questionnaire and needs an explanation of certain results. Then, qualitative data should be collected and analysed to provide the required explanation.
6	Selecting participants for in-depth study	MMR is used when a researcher uses quantitative results to choose appropriate participants for qualitative research.
7	Developing an appropriate instrument	MMR is used when a researcher needs sufficient qualitative information to construct a quantitative instrument.
8	Generalising qualitative findings	MMR is used when a researcher aims to generalise findings which were obtained by qualitative methods into a larger sample.

Having decided on a mixed methods approach, a researcher can select a design that addresses the objectives of the research. Mixed methods study design is determined based on three dimensions: the level of mixing (partial or full mixing), time consequences (concurrent or sequential) and degree of emphasis

on a specific method (equal or dominant status) (Leech & Onwuegbuzie, 2007). Creswell and Plano Clark (2007) classify four main mixed methods research designs. These are triangulation design, embedded design, explanatory design and exploratory design.

- The triangulation design is used to obtain better understanding of the study problem. A researcher collects quantitative and qualitative data in the same phase (concurrent) and both methods are given equal emphasis.
- The embedded design employs one of the methods as dominant whilst the other plays a supportive role.
- The explanatory design is used when a researcher needs to explain unanticipated or noteworthy findings. In the first stage, a researcher collects and analyses quantitative data followed by the second stage where the researcher collects and analyses qualitative data.
- The exploratory design is used when a researcher conducts a qualitative research to investigate a topic then collects and analyses quantitative data to examine and generalise the qualitative findings.

In this study, I took into account what has been reported in the literature about the potential benefits of mixed method research, purposes and designs. Thus, quantitative data is used as the primary source to explore the academic staff perception about the institutional support. Meanwhile, the qualitative data is provided to illustrate, enhance the integrity of quantitative results, explain unexpected and noteworthy results and offer in-depth explanations. In terms of time consequences, quantitative data was collected and initial analysis carried out to explore the noteworthy results which help to form the interview questions (the qualitative data).

3.4. Research Methods

As was clarified earlier, the combination of quantitative and qualitative methods are employed. In particular a survey research method, considered as one of the most common research methods (De Vaus, 2004), is conducted to gather data which is required to answer the study questions and achieve a deep, comprehensive understanding of the study problem. Baker (1999) defines the

survey as "a method of collecting data in which specifically defined groups of individuals are asked to answer a number of questions".

In this survey questionnaires and semi-structured interviews are applied as data collection instruments. Consequently, different sampling, data analysis and reporting procedures are followed.

The following sections describe the data collection instruments, and how they are constructed, applied, analysed and integrated to support each other.

3.4.1. Quantitative Survey (Questionnaire)

The initial draft of the questionnaire was written in the early stages of the study by reviewing the literature on ICT initiatives in higher education, ICT adoption models and theories, factors that facilitate or hinder academic staff from participating in e-learning and the reported required institutional support that motivates academic staff to adopt e-learning. The questionnaire is a common data collection instrument that is used to obtain information about research participants' beliefs, opinions, attitudes and perceptions about a study problem (Denscombe, 1998; Opie, 2004). Matthews and Ross (2010) define a questionnaire as a set of questions which are answered by a participant in different ways, either by choosing from pre-set responses (closed-ended questions) and/or in their own words (open-ended questions). Questionnaires are popular as they are considered an economical tool for gathering large amounts of data at a relatively low cost, especially when the research population is geographically scattered (Frankfort-Nachmias & Nachmias, 2000). In other words, the questionnaire is an appropriate instrument to be conducted on a large scale which is needed to generalise the findings (Neuman, 2003). Furthermore, the questionnaire's questions and answers are standardised which facilitates coding and analysing data (Matthews & Ross, 2010). In addition, a questionnaire allows the participants to answer the questions in the absence of a researcher which reduces researcher bias and influence on participants' responses. Furthermore, due to the anonymity of the questionnaire, it is an effective way of obtaining sensitive information more easily (Frankfort-Nachmias & Nachmias, 2000; Opie, 2004). However, researchers should be

aware of its limitations. One of the most common limitations of the questionnaire is the low return rate, known as the "non-response rate" (De Vaus, 2004). Many factors could lead to a high non-response rate such as length of questionnaire, unclear wording, study's objectives, and the nature and characteristics of the target population (De Vaus, 2004; Cohen, Manion & Morrison, 2007). Furthermore, the absence of the researcher could affect the opportunity to clarify ambiguous questions and to prompt participants to elaborate on an answer (Frankfort-Nachmias & Nachmias, 2000). However, in many instances these shortcomings can be overcome by improving the questionnaire design (Kumar, 2011).

According to Johnson and Christensen (2012) one of the most considerable strengths of the questionnaire is its ability to provide both quantitative and/or qualitative information about the participant's knowledge and experience of the subject area or topic in question. This is because questions contained within a questionnaire can be constructed in two main forms, namely open-ended and closed-ended questions.

Closed-ended questions, as defined by Ary *et al*. (2010), are questions that require participants to select an answer from a predetermined number of responses (i.e. alternatives or options). These suggested answers or responses could be divided into four different categories: nominal, ordinal, rating and ratio scales (De Vaus, 2004; Punch, 2005). These response categories, which play an essential role in selecting statistical treatment and data analysing (De Vaus, 2004), should be characterised as "exhaustive" which means the responses should cover all possible answers of a question and it should be "mutually exclusive" in that responses must not overlap and each question has to be answered in only one possible way (Baker, 1999; Check & Schutt, 2012; Simmons, 2008). Closed-ended questions are preferred for a number of reasons (Bryman, 2012; Check & Schutt, 2012). First, they may encourage participants to complete the questionnaire as the answers can be easily chosen from the response categories (Bryman, 2012; Neuman, 2003). Moreover, providing pre-set responses could clarify questions and reduce ambiguity (Kumar, 2011). In addition, closed-ended questions offer methodological benefits for researchers

as pre-coded answers provide manageable data that can easily be classified, tabulated, compared and is flexible for statistical treatments (Cohen *et al*, 2007; Neuman, 2003; Punch, 2009). Finally, closed-ended questions ensure that the required data which addresses a wide range of issues related to a study's questions is covered (Check & Schutt, 2012; Punch, 2009). Nevertheless, closed-ended questions have some disadvantages as they provide less opportunity to obtain in-depth information about the study problem (Denscombe, 1998). According to Kumar (2011) pre-determined answers encourage participants to choose without giving sufficient consideration to the questions and do not present the opportunity for the respondent to express his/her own opinion.

Based on the study questions and the literature review, I posed a list of closed-ended questions to obtain sufficient data to answer the questions about seven main types of actual and desired institutional support. After applying content validity procedures and the pilot study, the final version of the questionnaire consists of forty-four items categorised in seven main sections. Table 3.3 presents the questionnaire's sections, items and the studies which indicated the importance of items.

Table 3.3. The Questionnaire's Sections And Items (Based on The Literature Review)

No	Section and objective	Items included in the section	Examples of studies indicating the importance of the item
1	**Supportive institutional practices.** Provide information about actual and desired university practices during the planning and implementation of e-learning initiatives.	Clarity of e-learning strategies.	Graham *et al,* 2013; Moskal *et al*., 2013
		Stability of e-learning strategies.	Orr *et al*., 2009
		Clarifying importance of e-learning in the university's strategic vision.	
		Representing academic staff in e-learning planning.	Bower, 2001; Roberts, 2008
		Encouraging institutional discussion during e-learning initiatives phases.	Moskal *et al*., 2013
		Ensuring the support provided keeps pace with the growth of e-learning	Moser, 2007; Pirani *et al.*, 2004
		Enlightening AS about e-learning educational opportunities.	Butler & Sellbom, 2002; Hixon *et al.*, 2012
		Identifying the barriers to becoming involved in e-learning.	Panda & Mishra, 2007; Wang , Wang & Shee., 2007
		Making sure e-learning initiatives are driven by research findings.	Bennett *et al.*, 2006

No	Section and objective	Items included in the section	Examples of studies indicating the importance of the item
		Promoting the role of departments in encouraging AS to participate in e-	Olcott & Wright, 1995; Orr *et al*., 2009
2	**Technical support** Provide information about actual and desired procedures and approaches followed by the university to ensure seamless and continuous access to the Virtual Learning Environment (VLE).	Providing reliable technical infrastructure.	Moskal *et al*., 2013
		Offering user-friendly Virtual Learning Environments (VLE).	Porter *et al.,* 2014; Wang *et al*., 2013
		Ensuring continuous access to the VLE.	McGill *et al*., 2014; Moskal *et al*., 2013
		Running a 24/7 help desk to provide support.	Pirani *et al*., 2004
		Running units for educational multimedia production.	Wolcott, 1998
		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs, etc.).	Panda & Mishra 2007
3	**Pedagogical support** Provide information about actual and desired procedures and approaches followed by the university to address pedagogical issues and achieve a high level of pedagogical quality for e- learning courses.	Facilitating cooperation with instructional designers.	Moskal *et al*., 2013; Perreault *et al*., 2008
		Providing authoring tools to design e-learning courses.	Masoumi & Lindstorm, 2012; Moskal *et al*., 2013
		Providing prepared pedagogical templates for e-learning course.	
		Running pedagogical consultation units.	Lion & Stark, 2010; Taylor & McQuiggan, 2008
		Producing guides to increase courses' pedagogical quality.	Taylor & McQuiggan, 2008
		Establishing online communities to share e-learning experiences.	Stacey & Gerbic, 2008; Žuviü-Butorac & Nebiü, 2009
4	**Technical training** Provide information about actual and desired training programs and activities which are organised by the university to increase academic staff's technical skills.	Organising TPs to enhance using ICT in teaching.	Al-Mulhem, 2013; Alenezi, 2014; Dabbagh & Kitsantans, 2005; Minsull, 2004; Tina, 2011
		Organising TPs to increase course management skills in the VLE.	
		Organising TPs to increase course content management skills in the VLE.	
		Organising TPs to increase skills in using communication tools in the	
		Organising TPs to increase students' progress tracking skills in the VLE.	
		Organising TPs to increase assessments skills in the VLE.	
5	**Pedagogical training** Provide information about actual and desired training programs and activities which are organised by the university to increase academic staff's pedagogical knowledge and proficiency.	Organising TPs to improve instructional design skills.	Carril *et al*., 2013; Sanmamed *et al*., 2014
		Organising TPs to assist AS reconceptualising their role in e-learning environments.	Ocak, 2011
		Organising TPs to enhance interaction through e-learning.	Al-Mulhem, 2013; Carril *et al*.,

No	Section and objective	Items included in the section	Examples of studies indicating the importance of the item
		Organising TPs to increase students' engagement through e-learning.	2013; Sanmamed *et al*., 2014
		Organising TPs to improve creation of learner-centred learning strategies.	Taylor & McQuiggan
		Organising TPs to guide to the best practices in blending face-to-face	Stacey & Gerbic, 2008
6	**Training program flexibility** Provide information about actual and desired diversity and flexibility of training programmes.	Designing TPs based on accurate needs assessments.	Al-Zahrani, 2015; Porter *et al.,* 2014; Zayim *et al*., 2006
		TP diversity in terms of means (e.g. face-to-face and online).	(Morgan, 2003; Taylor & McQuiggan, 2008
		TP diversity in terms of forms (e.g. one-to-one and team-based).	Kukulska-Hulme, 2012; Taylor & Wilson, 2012
		Organising TPs on set dates.	
		TP diversity in terms of duration (short term-long term).	
7	**Institutional incentives** Provide information about actual and desired policies and procedures legislated by the university to encourage academic staff to participate in e-learning initiatives.	Developing monetary compensation schemes.	Alenezi, 2014; Gannon-Cook et al., 2009; Gautreau, 2011; Graham *et al.,* 2013; Schneckenberg, 2010
		Adjusting traditional workload credits.	
		Appreciating academic staff's participation in e-learning.	
		Taking into account academic staff's efforts in the promotion process.	
		Arranging funded travel to attend e-learning events.	

The closed-ended questions were designed to be answered according to a five point scale (Table 4.3).

Table 3.4. Explanation of The Scale Points

Option	Actual	Desired
1	The university **NEVER** provides the support indicated by the question.	The support indicated by the question is **Highly UNDESIRED**.
2	The university **RARELY** provides the support indicated by the	The support indicated by the question is **UNDESIRED**.
3	The university **OCCASIONALLY** provides the support indicated by	The academic staff is **NEUTRAL** about the support indicated by the question
4	The university **FREQUENTLY** provides the support indicated by	The support indicated by the question is **DESIRED**.
5	The university **ALWAYS** provides the support indicated by the	The support indicated by the question is **Highly DESIRED**.

Despite the fact that researchers prefer to use closed-ended questions in a questionnaire (Bryman, 2012; Check & Schutt, 2012), it has been advised that adding open-ended questions is especially useful for exploratory studies (Cohen *et al*., 2007; Johnson & Christensen, 2012). Check and Schutt (2012) define open-ended questions as questions without predetermined answers or choices, with participants providing the answer in their own words. Open-ended questions are utilised to obtain qualitative data (Johnson & Christensen, 2012) that reflect rich, in-depth and detailed perceptions from participants and reveal unanticipated issues in respect of the study's problem (Kumar, 2011). However, a researcher should be aware of the limitations of open-ended questions in that they demand more time and effort which could ultimately increase the non-response rate (Denscombe, 1998; De Vaus, 2004). Furthermore, participants could provide general raw data that is time-consuming and difficult to code and analyse (Neuman, 2003). In this study, seven open-ended questions were included which gave participants the opportunity to comment and provide additional issues that may not be included in the closed-ended questions. However, the participants were informed that these questions were optional to avoid increasing the non-response rate.

Furthermore, the questionnaire included five questions to provide demographic data about the participants' university, faculty, gender, main purpose of using VLE and attitude toward participation in e-learning, which are required to answer the differences questions (Table 3.5).

Table 3.5. The Questionnaire Demographic Questions

Demographic Question	Pre-set answers
University	Open question to ensure anonymity.
Faculty	Open question.
Gender	1- Male 2- Female
Main purpose of using VLE	I use the VLE for: 1- Only administrative purposes. 2- Only teaching purposes. 3- Both administrative and teaching. 4- Other purposes 5- Do not use the VLE at all
Attitude toward participation in e-learning	I participate in e-learning: 1- even without sufficient institutional support

	2- would participate only if sufficient institutional support were provided. 3- would not participate even if sufficient institutional support were provided

Having decided the questionnaire question forms, a researcher should carefully consider the questionnaire's design in terms of wording, length and layout (Baker, 2003). Questionnaires basically consist of a set of questions (Check & Schutt, 2012); therefore, it is essential that researchers give the question writing process a great deal of thought and consideration. According to Kumar (2011) the wording of the questions has a direct effect on the quality of the information and responses provided. In other words, appropriate wording is a crucial element for measurement validity (Check & Schutt, 2012). Denscombe (1998) also emphasises the importance of the correct wording of the questions and the way in which this affects a participant's willingness to complete it. In order to achieve a high level of clarity for the questions' wording, it is important to write short, direct questions (Matthews & Ross, 2010), to minimise the use of unfamiliar or technical words (Baker, 1999; Bryman, 2012), avoid using leading questions that direct participants to choose specific answers and avoid using negative forms and double-ended questions that ask about two facts in a single question (Ary *et al*., 2010; Neuman, 2003). Another aspect which must also be taken into account is the length of the questionnaire. Denscombe (1998) mentions that there is no specific rule that specifies a questionnaire's length; hence, researchers are advised to create a balance between avoiding designing a long questionnaire that could lead to a decrease in response rate and ensuring that questions will obtain sufficient data that is required to answer the study's questions (Neuman, 2003). Finally, it is pointed out that a well-designed questionnaire layout should not be deprecated as an attractive appearance influences participants' willingness to complete the questionnaire (Johnson & Christensen, 2012). Neuman (2003) identifies two main layout issues. Firstly, question-answer related designs such as the way that questions and answers are arranged within the questionnaire (e.g. matrix questions where a list of questions is arranged vertically using the same answer categories which are arranged horizontally). Secondly, the physical layout of questionnaires such as

combining the simplicity and attractiveness of the questionnaire, providing clear instructions that clarify how the answers should be provided (e.g. using circles or a check box requesting an X be put in a blank area, etc.) and starting the questionnaire with a cover letter. The cover letter should contain information about the researcher, the current study objectives and significance, importance of participant cooperation, provide assurance of ethical issues such as anonymity and confidentiality, offer to share the findings, and give the researcher's contact details and specify the questionnaire return date and method of return. The letter serves to provide advanced appreciation for the participation of the respondent (Ary *et al*., 2010; Baker, 1999; De Vaus, 2004).

To ensure the appropriateness of questionnaire wording, layout and length, I carried out a pilot study, extensive proofreading and translation procedures and content validity by selected experts (these procedures will be explained in detail later in the chapter).

Overall, the questionnaire consists of five main parts as illustrated in Table 3.6 (Appendix A).

- **Part one** includes the cover letter containing the study objectives, the importance of academic staff's contribution to the study, the possible implication of the study, ethical issues that are taken into account in the study and my contact details.
- **Part two** includes the participant's consent as an ethical consideration requirement.
- **Part Three** includes demographic questions about the participant: university, faculty, gender, main purpose of using VLEs and attitude toward participation in e-learning.
- **Part Four** includes seven sections of closed and open questions.
- **Part Five** includes a statement of thanks and the option for the participant to receive a report or the dissertation when it is approved.

Table 3.6. The Questionnaire Content

Section	Section content	No. of questions (Items)	Level of measurement
0	The cover letter	X	X
0	Consent option (for ethical considerations)		
Pre 1	Questions that provide demographic data.		

	(University-Faculty-Gender-Main Purpose- Attitude)		5	Nominal Level
1	Supportive institutional practices	Actual	10	Ordinal Level
		Desired	10	Ordinal Level
		Open-ended Q	1	Open-ended
2	Technical support	Actual	6	Ordinal Level
		Desired	6	Ordinal Level
		Open-ended Q	1	Open-ended
3	Pedagogical support	Actual	6	Ordinal Level
		Desired	6	Ordinal Level
		Open-ended Q	1	Open-ended
4	Technical training	Actual	6	Ordinal Level
		Desired	6	Ordinal Level
		Open-ended Q	1	Open-ended
5	Pedagogical training	Actual	6	Ordinal Level
		Desired	6	Ordinal Level
		Open-ended Q	1	Open-ended
6	Training programs' flexibility	Actual	5	Ordinal Level
		Desired	5	Ordinal Level
		Open-ended Q	1	Open-ended
7	Institutional incentives	Actual	5	Ordinal Level
		Desired	5	Ordinal Level
		Open-ended Q	1	Open-ended
Overall	Institutional support	Actual	44	Ordinal Level
		Desired	44	Ordinal Level
	Open-ended questions (Optional)		7	Open-ended

3.4.2. Semi-Structured Interview

The present study employs interviews to acquire in-depth and contextual information and to support and explain the findings that emerged via the questionnaire. In particular, the interviews target academic staff and e-learning deanship leaders in five universities in Saudi Arabia to evaluate the actual and desired institutional support provided to the academic staff to motivate them to adopt VLEs.

Interviews are a common qualitative data collection instrument (Perakyla & Ruusvouri, 2011). An interview is defined "as a verbal interaction where a researcher tries to elicit information, beliefs or opinions from another person" (Denscombe, 1998). The main purpose of using an interview is to find rich, deep and detailed information about the problem under investigation. Moreover, the researcher-participant interaction allows the researcher to clarify ambiguous questions and allows for the probing and prompting of reluctant participants to

share their experiences (Keats, 2000; Matthews & Ross, 2010; Tashakkori & Tiddle, 1998). However, when a researcher conducts an interview, he/she should be aware of the factors that reduce the quality of the data obtained, such as the fact that the nature of face-to-face interaction raises concerns about participants' anonymity and researcher bias through leading questions and facial expressions and body language (Cohen *et al*., 2007; Tashakkori & Tiddle, 1998).

The literature mentions various types of interview according to purpose, the method conducted and means and degree of flexibility. Interviews are classified according to degree of flexibility into three main categories (Johnson & Christensen, 2012; Matthews & Ross, 2010; Punch, 2009):

- Structured interviews that include predetermined questions and answers.
- Semi-structured interviews that include questions which are required to cover the study's topic with a degree of flexibility in the order of the questions, and answers provided.
- Unstructured interviews that give the participants the freedom to express their opinion about a certain topic.

In the current study, I conducted semi-structured interviews with academic staff to obtain deep, contextual information about their perceptions and evaluations of the actual and desired institutional support provided by their universities in order to motivate them to adopt VLEs. Furthermore, I interviewed e-learning deanship leaders in these universities. In particular, the interviews included questions about the following:

- Actual / desired supportive institutional practices.
- Actual / desired technical support.
- Actual / desired technical training.
- Actual / desired pedagogical support.
- Actual / desired pedagogical training.
- Actual / desired training programs' flexibility.
- Actual / desired institutional incentives.
- Questions with regard to the noteworthy quantitative results.

3.5. Translation of Data Collection Instruments

The current study's instruments were designed in English, translated and implemented into the Arabic context then the results were presented in English. Iarossi (2006) states that there is a concern about the meaning of concepts between different contexts. Thus, careful consideration should be given to the translation of the instruments.

After finishing the final version of the questionnaire and the interview schedule in English language, they were translated into Arabic by the researcher. Then, they were sent to an Arabic proof-reader to revise the instruments' wording. After that, the two versions were sent to two Arabic-English translators with an educational background to ensure the equivalency of the English and Arabic instruments and to make the required modifications. Finally, to make additional confirmation, both the Arabic and English versions underwent reverse translation process and the equivalence of the original and revised instruments was confirmed.

3.6. The Pilot Study

Before conducting the research on a large scale, I carried out a pilot study as a pre-test of the data collection instruments. According to Ary *et al*. (2010) pre-testing a data collection instrument can lead to discovering unexpected problems which allows the researcher to make the required adjustments before applying it on a large scale. A pre-test helps researchers to evaluate the wording of the questions (Kumar, 2011), identify sources of ambiguity (Cohen *et al*., 2007) and ensures that participants will understand questions as they should be understood (De Vaus, 2004). Moreover, pre-testing the instruments allows a researcher to estimate the time that is needed to complete the questionnaire and the interview. Additionally, a pilot study is an important source of participants' feedback on the research topic (Johnson & Christensen, 2012). Finally, it allows the researcher to make a prediction about the questions that are likely to be avoided which could lead to an increased non-response rate (De Vaus, 2004).

The pilot study was conducted in two phases. Firstly, five colleagues who are similar to the target population were asked to answer the questionnaire. The

Think-aloud technique was used with respondents being asked to express their thoughts verbally in order that the clarity of the instructions and questions could be evaluated. In the second phase a small sample was selected from the target population (six postgraduates who work as instructors in universities in Saudi Arabia). They were asked to complete the questionnaire and encouraged to provide their comments about its wording, layout and any further issues. While they completed the questionnaire the time required to do so was calculated and their reactions were observed to identify any difficulty in understanding the questions. In addition, Twitter was used to contact eight academic staff members and to ask them to participate in the pilot study by completing an online questionnaire using Qualtrics Online Survey Software.

With regards to piloting interview questions, a sample of three participants were interviewed to evaluate the interview questions and to explore strategies that would help to obtain extended answers when the interviews were implemented in the real contexts.

According to the face-to-face and online participants' feedback, the layout of the questionnaire was redesigned to provide instructions on how to express their perceptions about the actual and desired institutional support for the same item. Moreover, they asked to simplify or write definitions for technical terms such as "pedagogy".

3.7. Sampling

Often researchers may not be able to study all the units that form the target population (Cohen *et al*., 2007; Tashakkori & Teddlie, 1998). There may be many reasons for this such as geographical distance, the sensitive nature of a study topic or the great amount of effort, time and cost that is required to study a large population (Ary *et al,* 2010). Thus, researchers follow procedures to select a specific number of units (e.g. individuals) as a sample from the larger group (population) to form the basis for estimating and predicting the prevalence of unknown outcomes regarding the study population (Kumar, 2011). According to Baker (1999) the major aim of the sampling process is to establish a representative that allows the researcher to make inferences from the data

obtained from a sample to a wider population from which the sample was selected.

3.7.1. Sampling Strategies

Cohen *et al*. (2007) outline the impact and importance of sampling strategies on research quality. Sampling strategy is affected by the research methodology and whether quantitative or qualitative research has been conducted. In quantitative research, the sampling approach usually concentrates on the probability (or random) principle which is based on a mathematical theory called "Normal Distribution" of events (Ary *et al*, 2010; De Vaus, 2004; Denscombe, 1998). Random sampling means that each unit in the target population has the same probability of being chosen in the sample (Cohen *et al*., 2007; Frankfort-Nachmias & Nachmias, 2000). There are many random probability sampling approaches, namely simple random, systematic, stratified, and cluster sampling (Punch, 2008; Strugis, 2008). On the other hand, qualitative sampling focuses on criterion-based selection (Johnson & Christensen, 2012) in which a researcher selects the sample for specific purposes instead of focusing on the sample's representativeness (Ary *et al*, 2010; Flick, 2009). Researchers utilise the purposive (or judgmental) sampling strategy which means identifying and selecting a number of individuals who are qualified and authorised to provide sufficient data to address study questions (Kumar, 2011; Patton, 2002).

3.7.2. Sample Size

3.7.2.1. Quantitative Sample Size

Researchers decide the sample size depending on various factors such as the study's purpose and questions, the number of variables, the characteristic of the study population and its variation and whether it is homogenous or heterogeneous, the level of required accuracy, the expected response rate and the study of the methodological approach (Bryman, 2012; Cohen *et al*., 2007; Drew, Hardman & Hosp, 2008; Kumar, 2011). Quantitative researches tend to be conducted on a large sample size, as the aim of these studies is the generalisation of the findings that are inferred from the sample to the larger population from

which they are selected (Neuman, 2003). However, the fact that the sample is representative is more critical than the size (Drew *et al*., 2008; Johnson & Christensen, 2012); it is asserted that a large sample gives the study's findings a greater level of accuracy (Cohen *et al*, 2007; Johnson & Christensen, 2012; Neuman, 2003) and decreases sampling error which is defined by Bryman (2012) as, "the error in findings deriving from research due to differences between a sample and the population which it was selected from".

The present study is considered as an exploratory rather than universal study. Thus, I selected five public universities in Saudi Arabia according to their geographical location (one university each from north, south, west, east and central Saudi Arabia). For ethical considerations and to protect these universities' anonymity, the selected universities were given pseudonyms. Their real names will be replaced by Alpha, Beta, Gamma, Delta and Epsilon universities.

According to Biglan's discipline classification (Hard-Soft disciplines and Pure-Applied disciplines, Biglan, 1973), I selected faculties of Humanities, Business, Science and Engineering from each university (Table 3.7). Despite Biglan's classification system having been revised to accommodate the changing nature in the disciplines and to classify emerging disciplines (Stoecker, 1993), it is employed in this study because it provides the required level of discipline classifications.

Table 3.7. The Selected Faculties Based on Biglan's Discipline Classification

Dimension 1	**Dimension 2**	
	Hard	**Soft**
Pure	Science Faculty	Humanities Faculty
Applied	Engineering Faculty	Business Faculty

Having decided the faculties, I asked the universities for academic staff statistics. Moreover, the faculties' websites were used to form an overview about the academic staff numbers in the departments which could help me during the questionnaire distribution process.

3.7.2.2. Qualitative Sample Size

Qualitative researches initially aim to achieve in-depth understanding of the problem under investigation instead of generalisation (Neuman, 2003). Thus, qualitative researchers can choose a relatively small sample size (Bryman, 2012; Davies, 2007).

In this study, I used a purposive sampling strategy. In particular, a leader from e-learning deanship from each university was selected. In addition, two academic staff were selected from each university. A male and a female academic staff who were considered to have a good awareness about e-learning initiatives and support programmes. I followed a number of strategies to identify these academic staff members by tracking their websites, social media accounts, asking their Heads of Department or asking them directly about their attitudes towards learning and if they would agree to take part in the interviews.

3.8. Data collection procedures and ethical considerations

Before commencing data collection I was granted approval from the Department of Research Ethics and Data Protection Sub-Committee of the School of Education at Durham University on February 2013. Certain procedures are required to meet acceptable ethical standards and to assess the research against the British Educational Research Association's Revised Ethical Guidelines for Educational Research (2004). To do this, I carefully read and followed the Department Code of Practice on Research Ethics (University of Durham School of Education) and completed the Research Ethics and Data Protection Monitoring Form. The form required the following:

- Ensuring participants that their participation is voluntary.

  In this study, I obtained permission letters form the five universities and included an opt-out option in the questionnaire to clarify that participation in the study was voluntary and respondents had the right to withdraw from the study without providing reasons. Furthermore, interviewees were clearly informed of this in writing before every interview.
- Participants' anonymity where "Informants have a right to remain anonymous".

In this study, I referred to universities by pseudonyms instead of their real names. Furthermore, I confirmed in the questionnaire's cover letter and before every interview that participants' anonymity was ensured.

In addition, I used the questionnaire's cover letter and verbal summary before interviews to provide information about the research objectives and questions. In terms of recording interviews, every participant was asked for his/her permission to record the interview.

In terms of my positionality in relation to the study context, subject and participants, I work in a higher education institution in Saudi Arabia as an instructor of in e-learning field. However, I excluded my university to be chosen in the study sample. Thus, I am not a member of any university in the study sample and therefor for I am not a colleague of the participants.

3.8.1. Questionnaire data collection procedures

After obtaining the permission letters, I started to visit the universities to distribute and collect questionnaires. The questionnaires were distributed and collected using three main approaches:

- I personally visited academic staff in their offices on the male campuses and asked them to participate in the study.
- Most Heads of Department offered to provide assistance by distributing and collecting the questionnaires during departmental meetings and returning them to me later.
- For cultural reasons, it was difficult for me to obtain personal access to female academic staff sections. Again, Heads of Department provided much-appreciated help by sending the questionnaires to female campuses and collecting them later.

To distribute and collect the questionnaires, I visited each university three times (two or three days for each visit). Table 3.8 summarises the numbers of distributed, returned and completed questionnaires. (More sample details can be found in Chapter Four.)

Table 3.8. Number Of Distributed, Returned And Completed Questionnaires.

	Distributed Questionnaires	Returned Questionnaires	Completed Questionnaires
Alpha University	448	192	140
Beta University	390	175	116
Gamma University	280	142	96
Delta University	216	134	86
Epsilon University	220	120	80
Total	1554	763	518

3.8.2. Interview data collection procedures

After obtaining the permission letters from the targeted universities, I sent information letters to potential interview participants. These letters included information about the study questions and objectives, and ethical considerations that would be followed during the interview. Having arranged appointments, a total of five male academic staff were interviewed, five female academic staff who were interviewed by the phone and five were male e-learning deanship leaders (Table 3.9). During the interviews I tried to build a good rapport by welcoming the participants, thanking them for agreeing to take part in the interview and introducing myself to the participant. I provided a verbal explanation for the study purposes and the themes that should be covered, then I asked their permission to record the interview. Finally, the questions were asked according to the interview schedule with the required flexibility.

Table 3.9. Number Of The Conducted Interviews And The Pseudonyms Names Of The Interviewee

The Selected University	Number of interviews	
	Academic Staff	E-learning Leader
Alpha University	2 academic staff: Sara (F*) and Ali (M*)	1
Beta University	2 academic staff: Huda (F) and Ahmad (M)	1
Gamma University	2 academic staff: Lama (F) and Hassan (M)	1
Delta University	2 academic staff: Nada (F) and Omar (M)	1
Epsilon University	2 academic staff: Reema (F) and Abdullah (M)	1
Total	15	

*** All the names are pseudonyms names. F: Female Academic Staff M: Male Academic Staff**

3.9. Data Analysis

3.9.1. Quantitative Data Analysis

This current study investigates academic staff's perceptions about the actual and desired institutional support provided by their universities to encourage them to adopt VLEs. Additionally, the study is conducted in five selected universities in Saudi Arabia to compare the actual and desired institutional support from academic staff's points of view. Furthermore, it seeks to find out if there are statistically significant differences in academic staff's rating of actual institutional support according to their university, faculty, gender, main purpose of using VLE and their attitude towards participation in e-learning. It also seeks to find out if there are statistically significant differences in academic staff's rating of desired institutional support according to the same variables.

Before explaining the data analysis procedures and statistical treatments used, it should be noted that statistical data analysis is driven by factors that include study questions, numbers and types of variables (i.e. dependent or independent) and the level of measurement (i.e. nominal, ordinal, inferential and ratio scale) (Bryan, 2012; De Vaus, 2004; Punch, 2009; Kumar, 2011). Having received the returned questionnaires, they were checked manually to identify incomplete and inconsistent questionnaires. After editing the data they were coded, i.e. the responses were converted to numbers readable by computer software, and entered using Microsoft Excel 2011 then analysed using the Statistical Package for the Social Sciences, SPSS. In this study, two types of statistics were used namely, descriptive and inferential statistics (Bryman 2012; Cohen *et al*., 2007; Matthews & Ross, 2010; Punch, 2009). Regarding descriptive statistics which aim to summarise, display, present and illustrate the findings, I used frequencies, percentages, tables, graphical displays, measures of central tendency (e.g. mean) and measures of variability (e.g. variance of standard deviation). Furthermore, I utilised inferential statistics for the purpose of examining the significant testing and differences testing. Inferential statistics is used to determine if the findings that resulted from the sample are applied in the whole population (Mertler, 2008). Table 3.10 outlines the quantitative data analysis procedures.

Table 3.10. Quantitative Data Analysis Procedures

Data collection method		Statistics Type/tests	Results Presentation
Q. 1.1	Section1.A: Actual Supportive Institutional Practices (10 items).	Descriptive	Tables, Frequencies, Percentages Mean and Standard Deviation .
Q. 1.2	Section2.A: Actual Technical Support (6 items).		
Q. 1.3	Section3.A: Actual Pedagogical Support Items (6 items).		
Q. 1.4	Section4.A: Actual Technical Training (6 items).		
Q. 1.5	Section5.A: Actual Pedagogical Training(6 items).		
Q. 1.6	Section5.A: Actual Training Programmes Flexibility (5 items).		
Q. 1.7	Section6.A: Actual Institutional Incentives (5 items).		
Q1	Actual institutional support (44 items)		
Q.2.1	Differences in Actual institutional support according to University.	*One-Way ANOVA Scheffe's test*	Descriptive Tables, Frequencies, Percentages Mean and Standard Deviation .
Q. 2.2	Differences in Actual institutional support according to Faculty.	*One-Way ANOVA Scheffe's test*	
Q. 2.3	Differences in Actual institutional support according to Gender.	*Independent t-test*	
Q. 2.4	Differences in Actual institutional support according to Main purpose of using VLE.	*One-Way ANOVA Scheffe's test*	
Q. 2.5	Differences in Actual institutional support according to attitude towards participation in e-learning.	*One-Way ANOVA Scheffe's test*	
Q. 3.1	Section1.B: Desired Supportive Institutional Practices (10 items).	Descriptive	Tables, Frequencies, Percentages Mean and Standard Deviation.
Q. 3.2	Section2.B: Desired Technical Support (6 items).		
Q. 3.3	Section3.B: Desired Pedagogical Support Items (6 items).		
Q. 3.4	Section4.B: Desired Technical Training (6 items).		
Q. 3.5	Section5.B: Desired Pedagogical Training(6 items).		
Q. 3.6	Section5.B: Desired Training Programmes Flexibility (5 items).		
Q. 3.7	Section6.B: Desired Institutional Incentives (5 items).		
Q3	Desired institutional support (44 items)		
Q.4.1	Differences in Desired institutional support according to University.	*One-Way ANOVA Scheffe's test*	Tables, Frequencies, Percentages Mean and Standard Deviation .
Q. 4.2	Differences in Desired institutional support according to Faculty.	*One-Way ANOVA Scheffe's test*	
Q. 4.3	Differences in Desired institutional support according to Gender.	*Independent t-test*	
Q. 4.4	Differences in Desired institutional support according to Main purpose of using VLE.	*One-Way ANOVA Scheffe's test*	
Q. 4.5	Differences in Desired institutional support according to attitude towards participation in e-learning.	*One-Way ANOVA Scheffe's test*	
Q. 5.1	Section1.A*B: Actual*Desired Supportive Institutional Practices (10 Items).	*Paired t*-Test	

Q. 5.2	Section2.A*B: Actual*Desired technical support (6 Items).	*Paired t*-Test	Tables, Frequencies, Percentages Mean and Standard Deviation.
Q. 5.3	Section3.A*B: Actual*Desired pedagogical support (6 Items).	*Paired t*-Test	
Q. 5.4	Section4.A*B: Actual*Desired technical training (6 Items).	*Paired t*-Test	
Q. 5.5	Section5.A*B: Actual*Desired pedagogical training (6 Items).	*Paired t*-Test	
Q. 5.6	Section6.A*B: Actual*Desired training flexibility (5 Items).	*Paired t*-Test	
Q. 5.7	Section7.A*B: Actual*Desired Institutional incentives (6 Items).	*Paired t*-Test	
Q5	Sections: A*B Actual* Desired institutional support (44 itmes).	*Paired t*-Test	
Q. 6.1	Differences between actual presence and desired institutional support for each university.	*Paired t*-Test	Tables, Frequencies, Percentages Mean and Standard Deviation .
Q. 6.2	Differences between actual and desired institutional support for each faculty.	*Paired t*-Test	
Q. 6.3	Differences between actual and desired institutional support for each gender.	*Paired t*-Test	
Q. 6.4	Differences between actual and desired institutional support for each category of main purpose of using VLE.	*Paired t*-Test	
Q. 6.5	Differences between actual and desired institutional support for each category of attitude toward participation in e-learning.	*Paired t*-Test	

3.9.2. Qualitative Data Analysis

Patton (2002) defines qualitative analysis as converting qualitative data into findings. According to Mertler (2008) qualitative data analysis is a challenging task as researchers are required to reduce and analyse huge amounts of data. In this study, there were two sources for the qualitative data: data obtained from open-ended questions in the questionnaire and interviews. However, the main source of the qualitative data was the data that were obtained from the interviews. As the topics have already been identified in the questions and data collection instruments, I mainly adopted *deductive coding* which helps to identify themes which emerge from theoretical frameworks, research questions or questionnaires. However, I took into account new topics which emerged from the interviews (Fereday & Muir-Cochrane, 2008; Forman & Damschroder, 2008).

To a large extent, I followed Braun and Clarke's (2006) phases for thematic data analysis:

Familiarisation with data: this phase includes transcribing the data which means the process of transferring recorded data to written texts (King & Horrocks, 2010). A careful repeat reading of the written transcripts was carried out. This stage included data reduction as dealing with large and complex data is a challenging task (Namey *et al.* , 2007).

Generating codes: a code is defined by Cohen *et al*. (2007) as a label that is given to a piece of data. To code the data, data that could provide the required explanation and deep information were highlighted, these highlighted data were organised into groups according to themes determined by the study questions. This stage included carful translation of the data from Arabic to English language. After this, the findings were ready to be reported and displayed.

3.10.1. Reliability and Validity of Quantitative Data

Researchers endeavour to achieve high credibility for their studies (Merriam, 2002; Neuman, 2003). In other words, they seek to acquire the highest possible level of reliability and validity as crucial criteria to assess research quality (Kumar, 2011). Neuman (2003) states that both reliability and validity are essential concepts and must be carefully considered in building data collection instruments to establish truthfulness and credibility of findings; a lack of reliability and validity will lead to measurement error (De Vaus, 2004).

Reliability is reflected by consistency of the measurement (Cohen *et al*., 2007). Punch (2009) clarifies two main dimensions for a measurement's consistency. Firstly, consistency over time (*i.e*. stability) which means similar results should be obtained when the measurement is repeated on the same group of participants after a period of time. Secondly, internal consistency means that all measurement items should measure the same topic. In this study, I used SPSS to test the questionnaire's internal consistency by calculating Cronbach's Alpha Coefficient. Table 3.11 shows reliability statistics for actual sections. Meanwhile, Table 3.12 shows reliability statistics for the desired sections.

Table 3.11. Reliability Statistics - Actual Sections.

No	Section	Number of Items	Cronbach's Alpha
1	Supportive institutional practices	10	0.955
2	Technical support	6	0.914
3	Pedagogical support	6	0.941
4	Technical Training	6	0.950
5	Pedagogical Training	6	0.972
6	Flexibility of training	5	0.949
7	Institutional incentives	5	0.864
All	All scale	44	0.988

Table 3.12. Reliability Statistics - Desired Sections.

No	Section	Number of Items	Cronbach's Alpha
1	Supportive institutional practices	10	0.891
2	Technical support	6	0.835
3	Pedagogical support	6	0.888
4	Technical Training	6	0.815
5	Pedagogical Training	6	0.889
6	Flexibility of training	5	0.860
7	Institutional incentives	5	0.808
All	All scale	44	0.971

Researchers seek another more comprehensive criterion to develop data collection instruments which is validity (Cohen *et al*., 2007). A valid instrument basically means that it measures what it was constructed to measure (Punch, 2009; Bryman, 2012). The literature refers to various types of instrument to evaluate and examine validity including content validity, criterion validity (e.g. concurrent and predictive validity) and construct validity (Baker, 1999; Drew *et al*., 2008).

Content validity emphasises whether an instrument items cover all aspects of the topic under investigation (Ary *et al*., 2010; De Vaus, 2004); in other words, all the study objectives are represented in the instrument (Bryman, 2012; Neuman, 2003; Punch, 2005). In order to establish a high level of content validity for the present study's instruments, I reviewed the related literature such as empirical studies on e-learning motivators and barriers, ICT impact on teaching, ICT adoption theories and models, effective practices and e-learning policy documents to specify the areas of institutional support that are required to motivate academic staff to adopt VLEs. Then I developed questionnaire items that address the study's questions. Having constructed the questionnaire, the initial version was sent to a proof-reader to review and improve the questions and wording and identify any possible areas of vagueness or ambiguity. Then, the modified version of the questionnaire was presented to my supervisor and sent by Qualtrics Online Survey Software to experts in e-learning initiatives and online learning programmes' quality insurance teams, to evaluate and judge the questionnaire's validity. Furthermore, I used the pilot study results to improve the questionnaire's validity.

3.10.2. Trustworthiness of qualitative data

Qualitative researchers also emphasise the importance of obtaining high quality data (Neuman, 2003). However, whilst quantitative researchers utilise reliability and validity to evaluate the quality of research, qualitative researchers stress that these concepts do not apply in qualitative researches (Bryan 2012; King & Horrocks, 2010; Lincoln & Guba, 1985; Richards, 2009). For example, reliability in quantitative research refers to the possibility of obtaining similar results when the measurement is replicated which is difficult to achieve in qualitative research as the social settings cannot be replicated (Bryan, 2012). Therefore, qualitative researchers establishe alternative criteria to ensure research quality (Shenton 2004).

Guba and Lincoln (1994) proposed two main criteria to judge the quality of a qualitative research. These criteria are: authenticity and trustworthiness. Trustworthiness of a qualitative research is determined by credibility, transferability, dependability and conformability (Bryan 2012; Lincoln & Guba, 1985; Merriam, 2002; Richards, 2009; Shenton, 2004). According to Ary *et al*. (2009) these aforementioned criteria were adopted to ensure reliability and validity as can be seen in Table 3.13.

Table 3.13. Quantitative And Qualitative Data Reliability And Validity Ary *et al.* (2009)

Qualitative research quality criteria	Quantitative research quality criteria	Objective of criteria
Credibility	Internal Validity	Truth value
Transferability	External Validity	Generalisation
Dependability	Reliability	Consistency
Conformability	Objectivity	Neutrality

Credibility: parallels internal validity in quantitative research (Bryman, 2012; Guba & Lincoln, 1994) and refers to whether the research measures what it was designed to measure (Bryman, 2012). In qualitative research, this criterion is determined by the researcher's understanding of the participant's interpretation of the investigated problem (Merriam, 2002). In the present study, two sources of data were employed. In particular, I utilised quantitative and qualitative research methods to address the study questions.

Transferability: parallels external validity in quantitative research (Guba & Lincoln, 1994) and indicates to what extent the findings of a study can be applied in other contexts (Merriam, 2002; Richards, 2009). Due to the fact that qualitative research tends to be conducted on a small range and purposive selected sample, qualitative researchers argue that generalisation can be addressed in a different way (Bryman, 2012). In this study, the main aim of the interviews was to achieve in-depth and explanatory data rather than generalisable results. However, I replicated the samples by conducting the study in five different contexts which could enhance the findings' transferability (Polit & Beck, 2010).

Dependability: according to Guba and Lincoln (1994) parallels reliability, and refers to the possibility of replication of a study's findings (Merriam, 2002). However, qualitative researchers are aware of the difficulties replicating the findings in social situations (Bryman, 2012). Lincoln and Guba (1985) replaced reliability by dependability that can be achieved by carefully describing data collection methods, the procedures applied when conducting the study and how data were analysed. In the present study, I provided a detailed description of the study stages.

Conformability concerns objectivity (Bryman, 2012; Guba & Lincoln, 1994) and relates to the findings expressed by the participants' interpretation instead of the researcher's point of view of the investigated problem (Shenton, 2004) and is confirmed by other readers (Trochim, 2002). Patton (2002) asserts the difficulty of avoiding researcher bias and achieving complete objectivity. However, strategies are suggested to reduce researcher influence in the study findings such as utilising multiple methods in data collection (Lincoln & Guba, 1985; Merriam, 2002; Patton, 2002; Shenton, 2004). In this study, I utilised two methods of data and I was aware of the importance of neutrality during the interviews.

3.11. Summary

This chapter discussed in detail the methodological approaches utilised in the study. In particular, mixed methods research was explained in terms of its

advantages and how it was employed to address the research objectives. The chapter also explained the procedures of constructing two data collection instruments namely, the questionnaire and semi-structured interview. Based on the research methods, different sampling techniques (e.g. large scale, probability sampling, small-scale purposive sampling), data collection procedures and data analysis treatments (e.g. statistical and thematic analysis) were adopted. Furthermore, the chapter discussed the ethical considerations and procedures that were followed to ensure reliability, validity and trustworthiness of the quantitative data and qualitative data.

Chapter Four : The Quantitative Results

Chapter Four: The Quantitative Results

4. Introduction

This chapter aim to introduce the quantitative results and organised into four main sections. The first section provides detailed description of the study sample and its distribution according to university, school, gender, main purposes of using the VLEs and attitude towards e-learning. Then, the second section presents the result of question that related to the actual institutional support (Question One) and the differences in actual institutional support according to the different variables (Question Two). The third section presents the results of questions related with desired institutional support (Question Three) and the differences in desired institutional support according to the different variables (Question Four). The fourth section, provide the results of the statistical tests that aimed to find out if there are statistically significant differences between the actual and desired institutional support (Question Five) and if there are statistically significant differences between the actual and desired institutional support for each sub-variables (Question Six). Finally, the chapter ended by summarising the key findings.

It should be noted that I mainly used the Mean (M) to report the quantitative results such as ranking the items and sections, comparing between different sections and comparing between the study variables. Although the Standard Deviation (SD) was calculated for all items, it was not used to interpret the results because the responses were to large extent not vary and centralised around the Mean (M).

4.0. The Study Sample

4.0.1 The Study Sample distribution according to university, school and gender

Table 4.1 presents the demographic profile of the study sample population. The study targeted academic staff at five public universities in Saudi Arabia, and was distributed according to universities as follows: Alpha University, 27% (n=140), Beta University, 22% (n=116), Gamma University, 19% (n=96), Delta University, 17% (n=86), Epsilon University, 15% (n=80) (Figure 4.1). Regarding sample distribution according to academic staff's discipline (faculty), the study sample is

divided into four categories as follows: Humanities, 29% (n=149), Business, 22% (n=115), Science, 28% (n=145), Engineering, 21% (n=109) (Figure 4.2). Of the academic staff who completed this questionnaire (n=518), 65% were males (n=336), and 35% were females (n=186) (Figure 4.3).

Table 4.1. Distribution Of The Study Sample According To Universities And Faculties

		Alpha Uni.	Beta Uni.	Gamma Uni.	Delta Uni.	Epsilon Uni.	Total
Gender	Male	91	76	63	55	51	336
	Female	49	40	33	31	29	182
	Total	140	116	96	86	80	518
School	Humanities	39	36	26	28	20	149
	Business	31	27	20	20	17	115
	Science	39	33	27	22	24	145
	Engineering	31	20	23	16	19	109
	Total	140	116	96	86	80	518

Figure 4.1. Distribution Of The Study Sample According To University

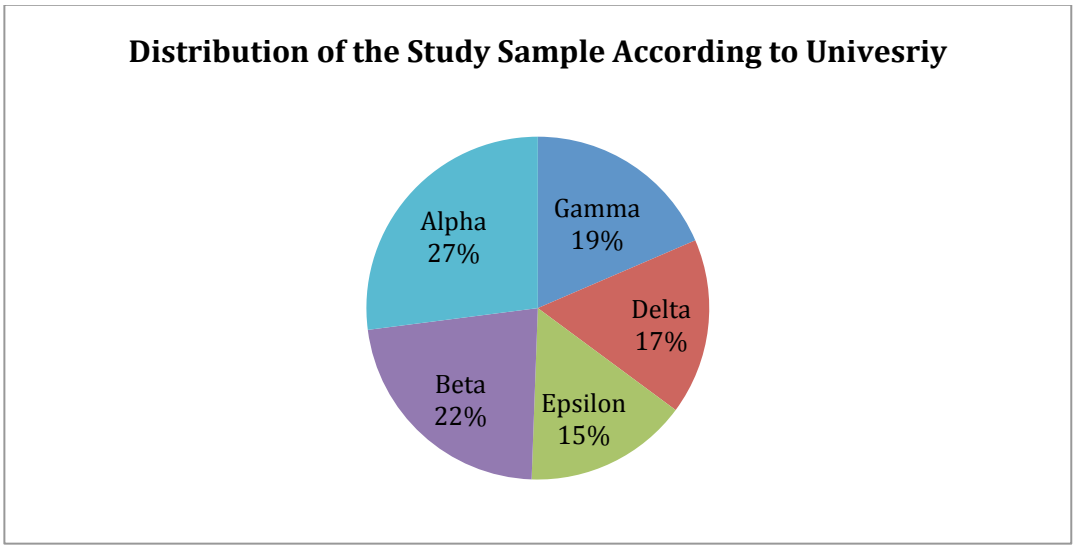


Figure 4.2. Distribution Of The Study Sample According To Faculty

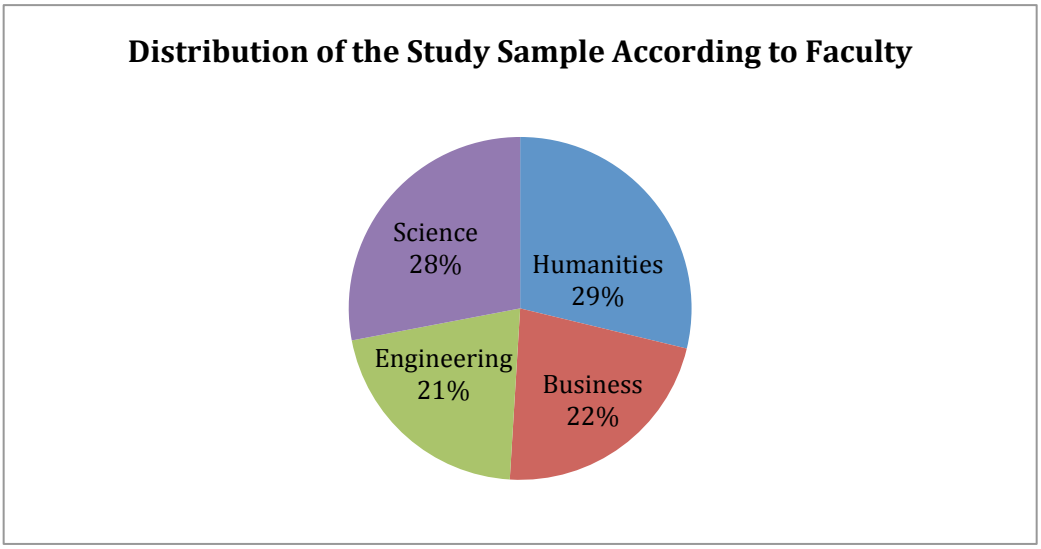
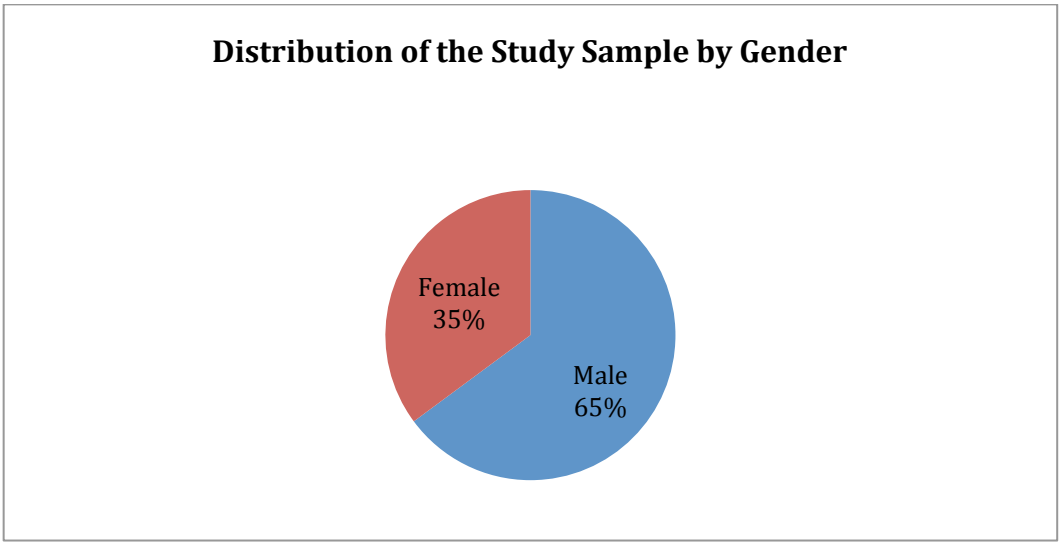


Figure 4.3. Distribution Of The Study Sample According To Gender



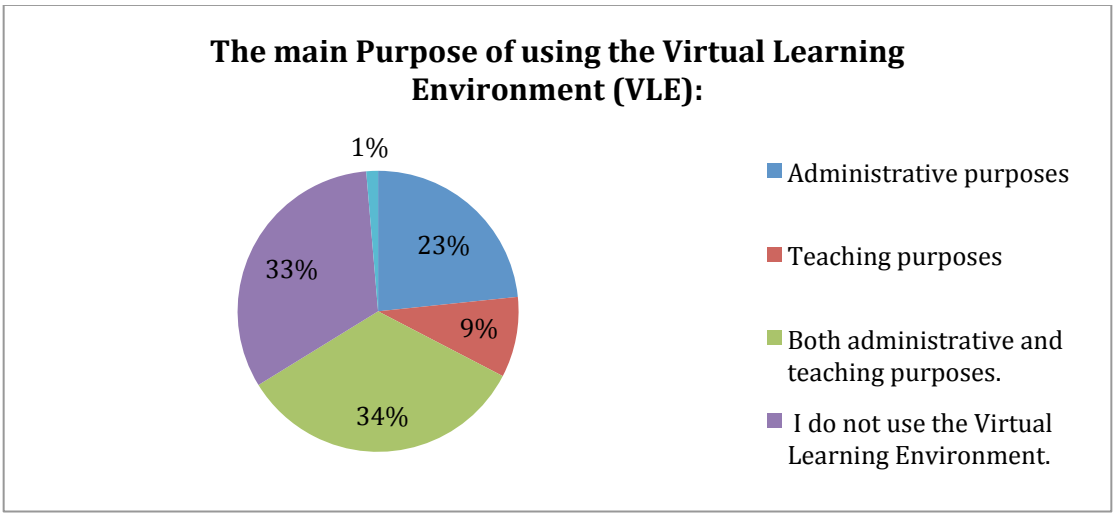
4.0.2 The Study Sample distribution according to main purpose of using VLE

Academic staff were asked to identify the main purpose of using the Virtual Learning Environment (VLE) (Table 4.2). The results show that 23% of academic staff use the VLE for only administrative purposes (n=121), 9% for teaching purposes (n=48), 34% for both administrative and teaching (n=174), 1% for other purposes (n=7) and 33% of academic staff indicated that they do not use the VLE at all (n=168) (Figure 4.4).

Table 4.2. Distribution Of The Study Sample According To Main Purpose of Using VLE

	Main Purposes	Alpha Uni.	Beta Uni.	Gamma Uni.	Delta Uni.	Epsilon Uni.	Total
The main Purpose of using VLE	Administrative Purposes.	47	39	6	21	8	121
	Teaching Purposes.	6	7	19	8	8	48
	Both Teaching and Administrative Purposes	34	33	53	24	30	174
	Do not use VLE	52	36	18	31	31	168
	Other purposes	1	1	0	2	3	7
	Total	140	116	96	86	80	518

Figure 4.4. Distribution Of The Study Sample According To Main Purpose of Using VLE



Academic staff's use of VLEs differs according to universities. For example, 81% of academic staff in Gamma University reported that they use the VLE either for administrative or teaching purposes followed by Beta University (68%), Delta University (62%), Alpha University (62%), Epsilon University (57%) respectively. In addition, this variation occurs in the academic staff's academic discipline (Faculty); for example, academic staff in Engineering faculties reported that they use the VLE more than the other faculties (81%) followed by Science and Business faculties (nearly 74% each) and finally, Humanities faculties (46%). However, it can be seen from Table 4.2 and Figure 4.4 that 57% of academic staff do not utilise the VLE for teaching purposes. In terms of main purpose for using VLEs according to academic staff gender, the figures are similar with nearly 65% of male and 67% of female academic staff indicating that they use VLEs. However, female academic staff tend to use them for both administrative and teaching purposes more than male academic staff (37% and 32% respectively).

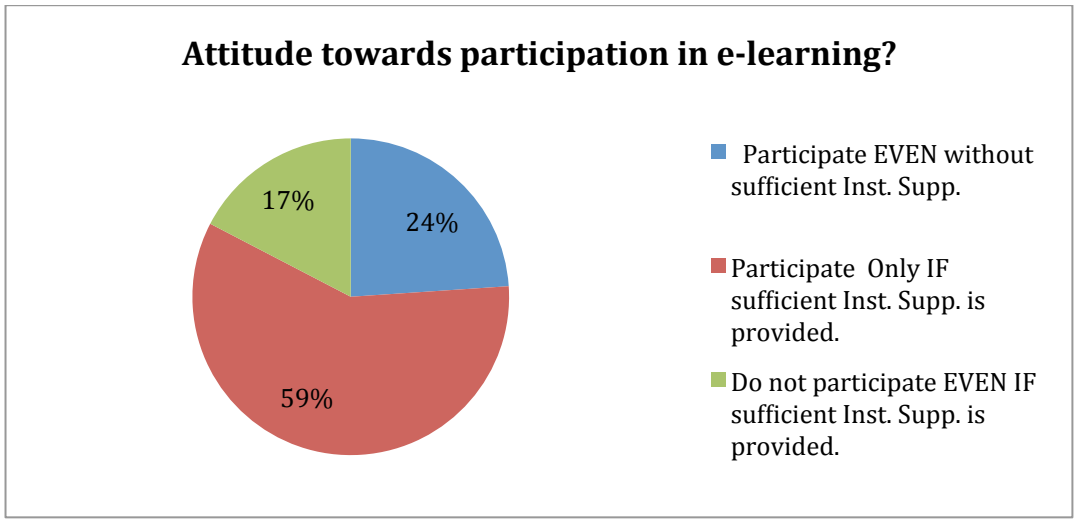
4.0.3 The Study Sample distribution according to academic staff attitude toward participation in e-learning

Academic staff were asked to clarify their attitude towards participation in e-learning, 24% stated that they would participate in e-learning even without sufficient institutional support (n=124), 59% stated that they would participate only if sufficient institutional support were provided (n=304) and 17% of them stated that they would not participate even if sufficient institutional support were provided (n=90) (Table 4.3)(Figure 4.5).

Table 4.3. Distribution Of The Study Sample According To Attitude Towards Participation in e-learning.

		Alpha Uni.	Beta Uni.	Gamma Uni.	Delta Uni.	Epsilon Uni.	Total
Attitude towards participation in e-learning	Participate even with insufficient institutional support	35	28	27	17	17	124
	Participate only if sufficient institutional support provided	75	67	58	51	53	304
	Do not participate even if sufficient institutional support provided	30	21	11	18	10	90
	Total	140	116	96	86	80	518

Figure 4.5. Distribution Of The Study Sample According To Attitude Towards Participation in e-learning.



Academic staff at Gamma University ranked first with 28% of them stating that they would participate in e-learning even without sufficient institutional support, followed by Alpha University (25%), Beta University (24%), Epsilon University (21%) and Delta University (20%). Female academic staff reported a slightly more positive attitude toward participating in e-learning with 25% of them stating that they would participate in e-learning even without sufficient

institutional support (compared with 23% of male academic staff). Moreover, 62% of female academic staff stipulated sufficient institutional support for participation in e-learning (compared with 57% of male academic staff). Finally, male academic staff showed a more negative attitude towards participation in e-learning with 20% of them stating that they would not participate in e-learning even if sufficient institutional support were provided (compared with 13% of female academic staff). In terms of academic staff faculty, the academic staff in Humanities faculties showed a relatively negative attitude with only 16% reporting that they would participate even without sufficient institutional support and 36% stating that they would not participate in e-learning even if sufficient institutional support were provided. In contrast, academic staff in Business (93%), Engineering (91%) and Science (87%) faculties demonstrated more willingness to participate in e-learning (either with or without sufficient institutional support).

4.1. The actual institutional support

This section aims to present the results of the first question that explore the academic staff's perception about the institutional support that is provided by five universities (i.e. perceived actual support) in Saudi Arabia to motivate academic staff to adopt VLEs.

Question 1: **From the perceptions of academic staff in Saudi Arabia, to what extent is institutional support provided by their universities to motivate them to adopt VLEs? (Seven sub-questions).**

As was explained in Chapters One and Three, this question consists of seven sub-questions aimed at obtaining data about actual supportive institutional practices, technical support, pedagogical support, technical training, pedagogical training, flexibility of training programs and institutional incentives.

This section presents the academic staff's assessment of the actual institutional support provided in these seven main areas. The academic staff were asked to rate actual presence of 44 items of institutional support as follows:

1 (Never) = if he/she believes that his/her university *never* provides the required support indicated by the item.

2 (Rarely) = if he/she believes that his/her university *rarely* provides the required support indicated by the item.

3 (Occasionally) = if he/she believes that his/her university *occasionally* provides the required support indicated by the item.

4 (Frequently) = if he/she believes that his/her university *frequently* provides the required support indicated by the item.

5 (Always) = if he/she believes that his/her university *always* provides the required support indicated by the item.

For analysis and reporting purposes, class interval (Table 4.4) was calculated by using the following formula (Fernandez, 2013):

Class interval = the highest response – the lowest response / Number of responses

= 5 – 1 / 5 = 4/5 = 0.80

Table 4.4. Utilised Scale to Explain the Means (Actual Institutional Support)

Mean	Mean description
1.00 - <1.80	Never
1.80 - < 2.60	Rarely

Mean	Mean description
2.60 - < 3.40	Occasionally
3.40 - < 4.20	Frequently
4.20 - 5	Always

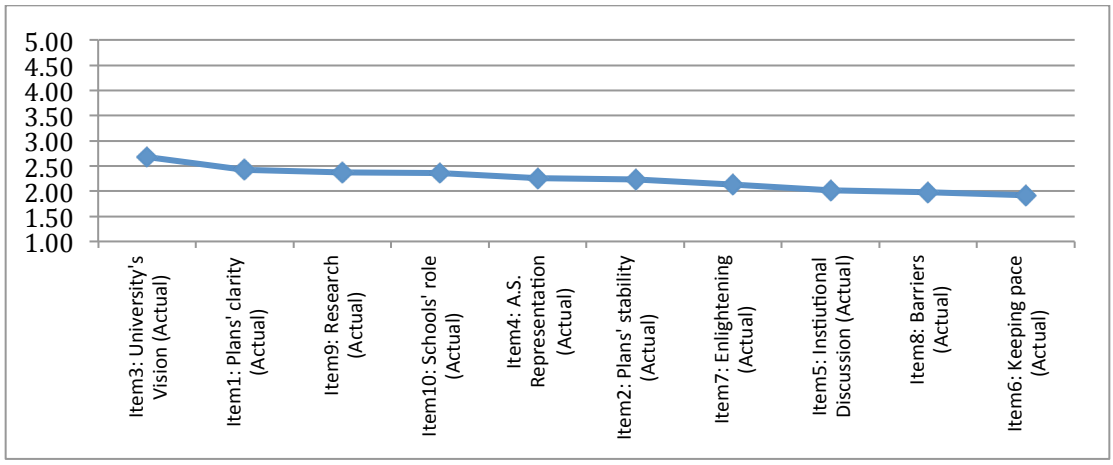
Question 1.1: To what extent is the required supportive institutional practices provided?

Table 4.5 and Figure 4.6 present academic staff's assessments (n= 518) of ten supportive institutional practices which are actually provided that motivate them to adopt the VLE.

Table 4.5. Academic Staff's Assessment of The Actual Supportive Institutional Practices

ITEM			Degree of Inst. Supp. Availabilty (Actual)					Mean	Std. Dev.	Rank*
			Always	Freq.	Occ.	Rarely	Never			
1	Clarity of e-learning strategies.	F	21	83	89	228	97	2.43	1.09	2
		%	4.1	16	17.2	44	18.7			
2	Stability of e-learning strategies.	F	6	48	100	271	93	2.23	0.89	6
		%	1.2	9.3	19.3	52.3	18			
3	Clarifying e-learning importance in the university strategic vision.	F	31	90	139	193	65	2.67	1.09	1
		%	6	17.4	26.8	37.3	12.5			
4	Representing of academic staff in e-learning planning.	F	10	59	84	266	99	2.26	0.96	5
		%	1.9	11.4	16.2	51.4	19.1			
5	Encouraging institutional discussion during e-learning initiatives phases.	F	6	39	93	199	181	2.02	0.97	8
		%	1.2	7.5	18	38.4	34.9			
6	The provided support is keeping pace with e-learning programmes growth.	F	11	39	67	180	221	1.92	1.02	10
		%	2.1	7.5	12.9	34.7	42.7			
7	Enlightening AS about e-learning educational opportunities.	F	10	60	67	230	151	2.13	1.02	7
		%	1.9	11.6	12.9	44.4	29.2			
8	Identifying the barriers of involvement in e-learning.	F	10	43	36	266	163	1.98	0.94	9
		%	1.9	8.3	6.9	51.4	31.5			
9	E-learning initiatives are driven by researches' findings.	F	4	48	217	118	131	2.37	0.99	3
		%	0.8	9.3	41.9	22.8	25.3			
10	Departments' role in encouraging AS to participate in e-learning.	F	17	79	115	168	139	2.36	1.13	4
		%	3.3	15.3	22.2	32.4	26.8			
		F	518	Supportive institutional practices (actual) section's Mean= 2.24 Std. Dev. = 0.85						
		%	100							

Figure 4.6. Academic Staff's Assessment of The Actual Supportive Institutional Practices



As can be seen from the means and percentages displayed in the table and Figure 4.6, and according to the scale which is described in Table 4.4, participants evaluated the actual presence of nine items as *rarely* provided with means ranging between 1.92 to 2.43 with only a single item evaluated as *occasionally* (M=2.67).

The highest support item rated by academic staff was item 4, "Clarifying the importance of e-learning in the university's strategic vision" (M=2.67 SD=1.09). The presence of this type of support was the only item rated by academic staff as *occasionally* provided with 50.2% reporting that this support is *occasionally*, *frequently* or *always* provided. However, the academic staff reported that the other nine support items were *rarely* provided. These items can be arranged in descending order according to their mean as follows: item 1, "Clarity of e-learning strategies" was ranked second (M= 2.46 SD=1.09) with 62.7% stating that this support is *never* or *rarely* provided, followed by item 9, "E-learning initiatives are driven by research findings" (M=2.37 SD=0.99), 10, "department's role in encouraging AS to participate in e-learning" (M=2.36 SD=1.13), 4, "Representing of academic staff in e-learning planning", item 2, "Stability of e-learning strategies" (2.26 and 2.23), item 7 "Enlightening AS about e-learning educational opportunities", with more than 73% of academic staff reporting that this support is never or rarely provided (M=2.13 SD=1.02), item 5, "Encouraging institutional discussion during e-learning initiatives phases" (M=2.02 SD=0.97) and item 8, "Identifying the barriers to using e-learning" (M=1.98 SD=0.94) with nearly one-third of academic staff reporting that the last two items are *never*

provided by their universities. Finally, item 6 was ranked lowest in this section with more than 42% of respondents asserting that the "provided support does not keep pace with e-learning programs' growth" (M=1.92 SD=1.02).

In general, according to academic staff perception supportive *institutional practices* are *rarely* provided, with mean=2.24 and SD=0.85.

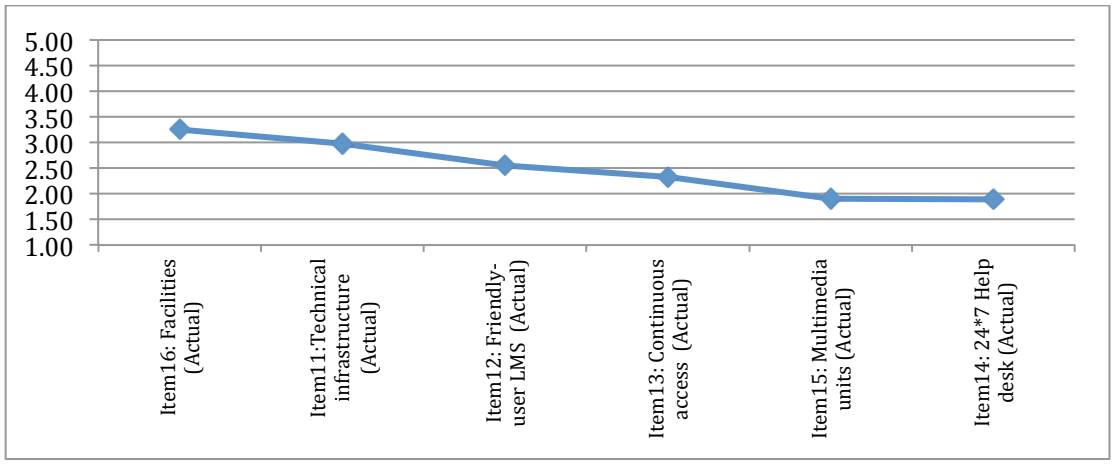
Question 1.2: To what extent is the required technical support provided?

Table 4.6 and Figure 4.7 present academic staff's assessment (n= 518) of the actual presence of six types of required technical support which includes the procedures and approaches followed by the university to ensure seamless and continuous access the VLEs.

Table 4.6. Academic Staff's Assessment of The Actual Technical Support

ITEM			Degree of Inst. Supp. Availabilty (Actual)					Mean	Std. Dev.	Rank*
			Always	Freq.	Occ.	Rarely	Never			
11	Providing reliable technical infrastructure.	F	51	137	131	149	50	2.98	1.16	2
		%	9.8	26.4	25.3	28.8	9.7			
12	Offering user-friendly Virtual Learning Environments (VLE).	F	40	55	153	176	94	2.56	1.13	3
		%	7.7	10.6	29.5	34	18.1			
13	Ensuring continuous access to the VLE.	F	21	58	125	177	137	2.32	1.10	4
		%	4.1	11.2	24.1	34.2	26.4			
14	Running a 24X7 help desk to provide support.	F	12	33	42	229	202	1.89	0.96	6
		%	2.3	6.4	8.1	44.2	39			
15	Running units for educational multimedia production.	F	5	44	74	166	229	1.90	1.00	5
		%	1	8.5	14.3	32	44.2			
16	Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs, etc).	F	75	181	102	122	38	3.26	1.18	1
		%	14.5	34.9	19.7	23.6	7.3			
		F	518	Technical support section's (Actual) Mean= 2.48 Std. Dev.= 0.91						
		%	100							

Figure 4.7. Academic Staff's Assessment of The Actual Technical Support



The results in Table 4.6 and Figure 4.7 indicate that academic staff evaluated the actual presence of two items as *occasionally* provided with means ranging between 2.98 to 3.26 and four items were evaluated as *rarely* provided with means ranging between 1.89 and 2.56.

About 50% of academic staff agreed that their universities offer the required "facilities to participate in e-learning, *e.g.* laptops, tablet labs, etc.," (item16). However, more than one-third of them reported lack of provision of this support. This type of support ranked highest in the technical support section (M=3.26 SD1.18). Ranking second, academic staff reported that their university *occasionally* provides "reliable technical infrastructure" (item 11, M= 2.98 SD1.16).

Regarding the remaining technical support items, academic staff reported lack of provision of the required support. More than half the academic staff believe that their university does not "offer user-friendly VLEs" (item 12, M=2.56 SD=1.13). Furthermore, academic staff reported *rare* provision of required support as indicated in item 13 "Ensuring continuous access to the VLE" (M= 2.32 SD=1.10), item 15, "Running units for educational multimedia production" (M= 1.90 SD=1.00) and finally item 14 "Running a 24/7 help desk to provide support" (M= 1.89 SD=0.96).

Generally, academic staff indicated that their universities *rarely* provide *technical support* that is needed to motivate them to adopt the VLE. This can be seen in the overall mean for the section (M= 2.48 SD= 0.91).

Question 1.3: To what extent is the required pedagogical support provided?

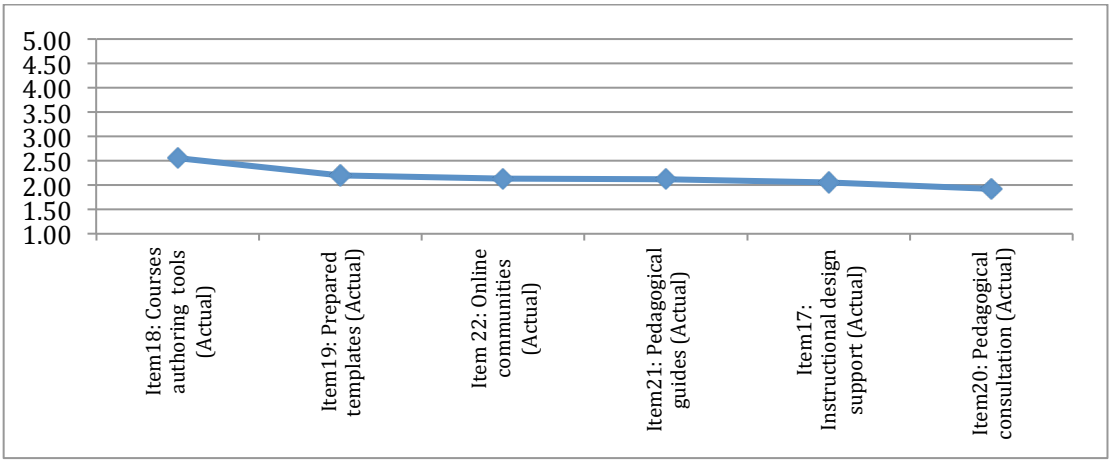
Table 4.7 and Figure 4.8 present academic staff's assessment (n= 518) of actual presence of six types of required pedagogical support which include procedures and approaches followed by the university to address pedagogical issues and achieve a high level of pedagogical quality for e-learning courses.

Table 4.7. Academic Staff's Assessment of The Actual Pedagogical Support

ITEM			Degree of Inst. Supp. Availabilty (Actual)					Mean	Std. Dev.	Rank*
			Always	Freq.	Occ.	Rarely	Never			
17	Facilitating cooperation with instructional designers.	F	4	29	99	245	141	2.05	0.87	5
		%	0.8	5.6	19.1	47.3	27.2			
18	Providing authoring tools to design e-learning courses.	F	11	122	69	257	59	2.55	1.04	1
		%	2.1	23.6	13.3	49.6	11.4			

19	**Providing prepared pedagogical templates for e-learning course.**	F	7	50	144	154	163	2.20	1.03	2
		%	1.4	9.7	27.8	29.7	31.5			
20	**Running pedagogical consultations units.**	F	7	34	80	187	210	1.92	0.97	6
		%	1.4	6.6	15.4	36.1	40.5			
21	**Producing guides to increase courses' pedagogical quality.**	F	7	34	109	230	138	2.12	0.92	4
		%	1.4	6.6	21	44.4	26.6			
22	**Establishing online communities to share e-learning experiences.**	F	8	39	113	215	143	2.14	0.96	3
		%	1.5	7.5	21.8	41.5	27.6			
		F	518	**Pedagogical support (actual) section's Mean= 2.16 Std. Dev.= 0.85**						
		%	100							

Figure 4.8. Academic Staff's Assessment of The Actual Pedagogical Support



The results in Table 4.7 and Figure 4.8 indicate that academic staff reported that actual presence of all the pedagogical support items are *rarely* provided by their universities, with means ranging between 1.92 and 2.55.

Nearly one-quarter of academic staff stated that their universities *always* or *frequently* "provide authoring tools to design e-learning courses" (item 8, M=2.55 SD=1.04). However, 60% of them said that their universities *never* (or *rarely*) provide this type of support.

Likewise, ranking second, academic staff reported that their universities *rarely* provide "prepared pedagogical templates for e-learning courses" (item 19, M= 2.20 SD=1.03) with only one-quarter of academic staff believing their universities *always* (or *frequently*) provide the required support that is indicated in item 18.

Additionally, items 22 and 21 respectively came in the third and fourth rank. Academic staff reported lack of "establishing online communities to share e-learning experiences" (M= 2.14 SD=0.96) and "producing guides to increase courses' pedagogical quality" (M=2.12 SD=0.92).

Again, academic staff's responses highlighted lack of pedagogical support in terms of "Facilitating cooperation with instructional designers" (item 17, M= 2.05 SD=0.87) and "Running pedagogical consultations units" (item 20, M=1.92 SD=0.92) since nearly three-quarters of academic staff reported that their universities *never* (or *rarely*) provide these two items.

Generally, academic staff indicated that their universities *rarely* provide the pedagogical support required to motivate them to adopt the VLE. This can be seen in the overall mean for the section (M= 2.16 SD= 0.85).

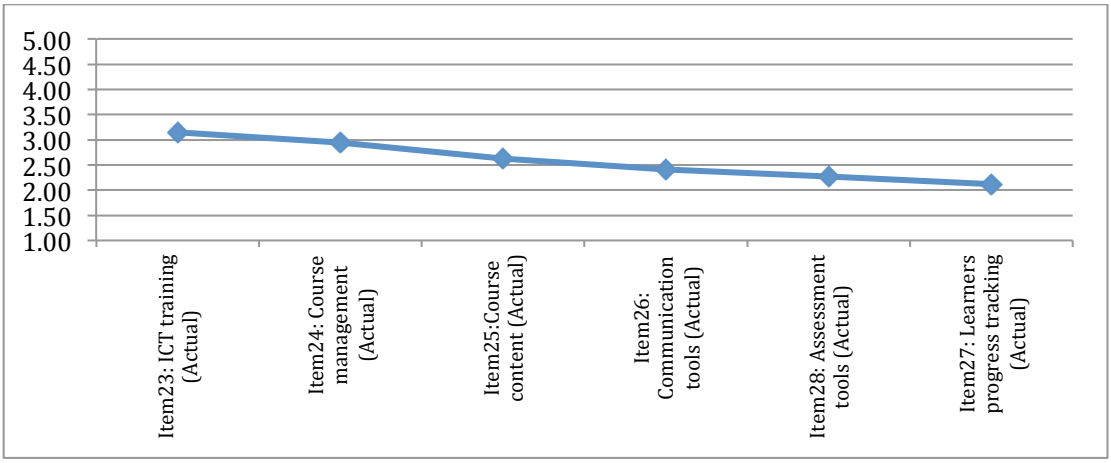
Question 1.4: To what extent is the required technical training provided?

Table 4.8 and Figure 4.9 present academic staff's assessment (n= 518) of actual presence of six required technical training programs and activities which are organised by the university to increase academic staff's technical skills.

Table 4.8. Academic Staff's Assessment of The Actual Technical Training

ITEM			Degree of Inst. Supp. Availabilty (Actual)					Mean	Std. Dev.	Rank*
			Always	Freq.	Occ.	Rarely	Never			
23	Organising TP to enhance using ICT in teaching.	F	67	91	256	61	43	3.15	1.06	1
		%	12.9	17.6	49.4	11.8	8.3			
24	Organising TP to increase course management skills in the VLE.	F	27	142	187	100	62	2.95	1.07	2
		%	5.2	27.4	36.1	19.3	12			
25	Organising TP to increase course content management skills in the VLE.	F	16	100	162	156	84	2.63	1.06	3
		%	3.1	19.3	31.3	30.1	16.2			
26	Organising TP to increase my skills in using communication tools in the VLE.	F	9	86	106	221	96	2.40	1.02	4
		%	1.7	16.6	20.5	42.7	18.5			
27	Organising TP to increase students' progress tracking skills in the VLE.	F	12	58	118	121	209	2.12	1.13	6
		%	2.3	11.2	22.8	23.4	40.3			
28	Organising TP to increase assessments skills in the VLE.	F	7	59	128	196	128	2.27	1.00	5
		%	1.4	11.4	24.7	37.8	24.7			
		F	518	**Technical training (actual) section's Mean= 2.59 Std. Dev. = 0.95**						
		%	100							

Figure 4.9. Academic Staff's Assessment of The Actual Technical Training



The results in Table 4.8 and Figure 4.9 indicate that academic staff evaluated actual presence of three items of technical training as *occasionally* provided with means ranging between 2.63 and 3.15 and three items evaluated as *rarely* provided with means ranging between 2.12 and 2.40.

The highest ranked item in this section was item 23 "Organising TPs to enhance using ICT in teaching" (M=3.15 SD=1.06) with more than one-third of academic staff stating that their universities *always* (or *frequently*) provide the required ICT training programs. Likewise, ranking second, academic staff reported that their universities *occasionally* "Organise training programs to increase course management skills in the VLE" and "Organise training programs to increase course content management skills in the VLE" with means of 2.95 and 2.63 respectively.

Academic staff's responses revealed lack of technical training programs in three items: Item 26, "Organising TPs to increase skills in using communication tools in the VLE." (M= 2.40 SD= 1.02); Item 28, "Organising TPs to increase assessments skills in the VLE" (M=2.27 SD=1.13); and Item 27, "Organising TPs to increase students' progress tracking skills in the VLE" (M=2.12 SD=1.00). More than 60% of academic staff reported that their universities *never* (or *rarely*) provide the support indicated by these three items.

Generally, academic staff indicated that their universities *rarely* provide *technical training programs* required to motivate them to adopt the VLE. This can be seen by the overall mean for the section (M= 2.59 SD= 0.95).

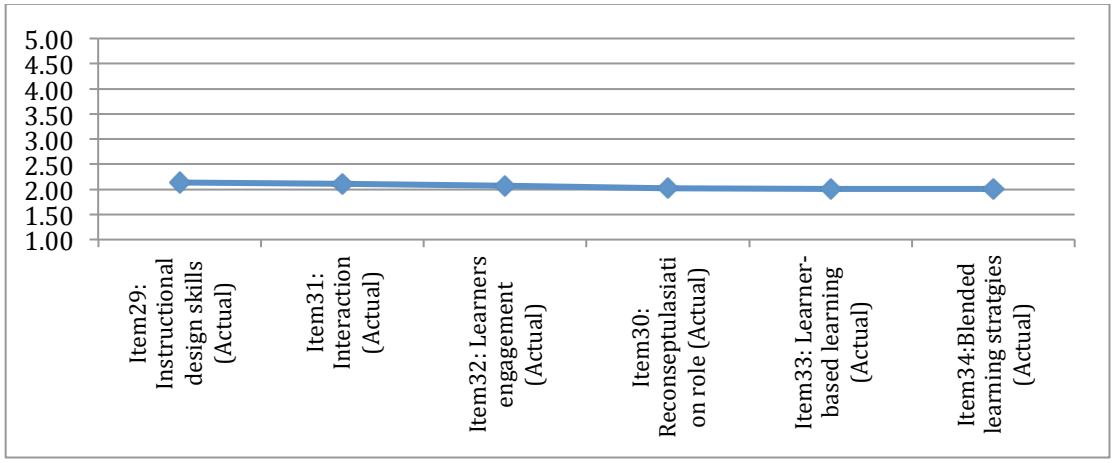
Question 1.5: To what extent is the required pedagogical training provided?

Table 4.9 and Figure 4.10 present academic staff's assessment (n= 518) of actual presence of six items from the required pedagogical training section which include training programs and activities which are organised by the university to increase academic staff's pedagogical knowledge and proficiency.

Table 4.9. Academic Staff's Assessment of The Pedagogical Training

ITEM			Degree of Inst. Supp. Availabilty (Actual)					Mean	Std. Dev.	Rank*
			Always	Freq.	Occ.	Rarely	Never			
29	Organising TP to improve instructional design skills.	F	10	46	106	197	159	2.13	1.01	1
		%	1.9	8.9	20.5	38	30.7			
30	Organising TP to assist AS reconceptualising my role in e-learning environments.	F	9	49	92	161	207	2.02	1.06	4
		%	1.7	9.5	17.8	31.1	40			
31	Organising TP to enhance the interaction through e-learning.	F	10	46	97	204	161	2.11	1.01	2
		%	1.9	8.9	18.7	39.4	31.1			
32	Organising TP to increase students' engagement through e-learning.	F	7	36	110	202	163	2.08	0.96	3
		%	1.4	6.9	21.2	39	31.5			
33	Organising TP to improve creating learner-centred learning strategies.	F	8	30	124	153	203	2.01	1.00	5
		%	1.5	5.8	23.9	29.5	39.2			
34	Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	F	9	35	111	157	206	2.00	1.02	6
		%	1.7	6.8	21.4	30.3	39.8			
		F	518	Pedagogical training (actual) section's Mean= 2.06 Std. Dev. = 0.95						
		%	100							

Figure 4.10. Academic Staff's Assessment of The Pedagogical Training



The results in Table 4.9 and Figure 4.10 indicate that academic staff reported that the pedagogical training section items are *rarely* provided by their universities with means ranging between 2.00 and 2.13.

Nearly three-quarters of academic staff stated that their universities *never* (or *rarely*) "Organise training programs to improve instructional design skills" (item 29, M=2.13 SD=1.01). This is followed very closely by nearly 70% of academic staff who stated that their universities *never* (or *rarely*) "Organise TPs to enhance interaction through e-learning" (item 31, M=2.11 SD=1.01).

Likewise, ranking third, academic staff reported that "Organising of TPs to increase students' engagement through e-learning" was *rarely* provided (item 32, M=2.08 SD=0.96) with only 80% of academic staff believing that their universities *always* (or *frequently*) provide the required support indicated in this Item.

Additionally items 30, 33 and 34 ranked fourth, fifth and sixth respectively. The vast majority of academic staff reported lack of "Organising training programmes to assist academic staff to reconceptualise their role in e-learning environments" (M= 2.02 SD=1.06), "Organising training programs to improve the creation of learner-centred learning strategies" (M=2.01 SD=0.92) and "Organising TPs to guide to the best practices in blending face-to-face teaching and e-learning" (M=2.00 SD=1.02).

Generally, academic staff indicated that their universities *rarely* provide the *pedagogical training* necessary to motivate them to adopt the VLE. This can be seen by the overall mean for the section (M= 2.06 SD= 0.95).

Question 1.6: To what extent can the provided training programmes be described as flexible?

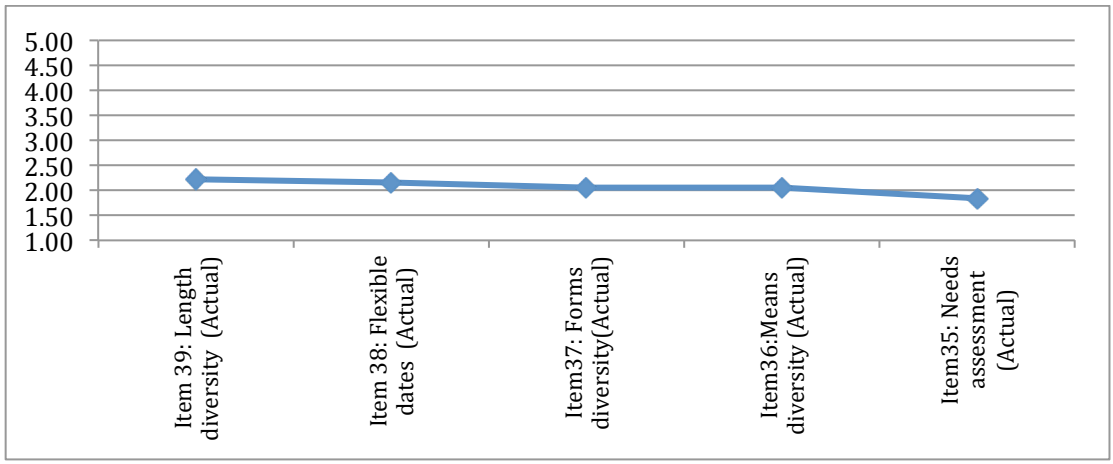
Table 4.10 and Figure 4.11 present academic staff's assessment (n= 518) of training programs' flexibility.

Table 4.10. Academic Staff's Assessment of The Actual Flexibility of Training Programmes

ITEM			Degree of Inst. Supp. Availabilty (Actual)					Mean	Std. Dev.	Rank*
			Always	Freq.	Occ.	Rarely	Never			
35	Designing TP based on accurate need assessments.	F	7	34	81	144	252	1.84	1.00	5
		%	1.4	6.6	15.6	27.8	48.6			
36	TP diversity in terms of means (e.g. face-to-face and online).	F	9	59	90	153	207	2.05	1.09	4
		%	1.7	11.4	17.4	29.5	40			
37	TP diversity in terms of forms (e.g. one-to-one and team-based).	F	9	54	87	175	193	2.06	1.05	3
		%	1.7	10.4	16.8	33.8	37.3			
38	Organising TP in fixable dates.	F	13	57	87	206	155	2.16	1.05	2
		%	2.5	11	16.8	39.8	29.9			
39	TP diversity in terms of	F	10	49	90	265	104	2.22	0.94	1

	durations (short term-long term).	%	1.9	9.5	17.4	51.2	20.1			
		F	518	Training programmes flexibility (actual) section's Mean= 2.07 Std. Dev.= 0.94						
		%	100							

Figure 4.11. Academic Staff's Assessment of The Actual Flexibility of Training Programmes



The results in Table 4.10 and Figure 4.11 show that academic staff reported that flexible training programs are *rarely* provided by their universities with means ranging between 1.84 and 2.22.

Nearly 70% of academic staff believe that their universities *never* (or *rarely*) offer "diverse training programs in terms of duration (short term/long term)" (item 39, M=2.22 SD=0.94). Furthermore, 70% also reported lack of flexibility in terms of dates of training programs (item 38, M=2.16 SD=1.05).

In addition, items 37 and 36 were ranked third and fourth respectively. Two-thirds of academic staff reported lack of flexibility of "training programs' diversity in terms of form (*e.g*. one-to-one and team-based)" (M=2.06 SD=1.05) and lack of "training program diversity in terms of means (*e.g*. face-to-face or online)" (M=2.05 SD=1.09).

Finally, the vast majority of academic staff consider that their university *never* (or *rarely*) designs training programs based on accurate needs assessments (item 35). This item is the lowest item rated by academic staff with a mean of 1.84.

Generally, academic staff reported *rare* flexibility of training programs organised by universities. This can be seen by the overall mean for the section (M=2.07 SD= 0.94).

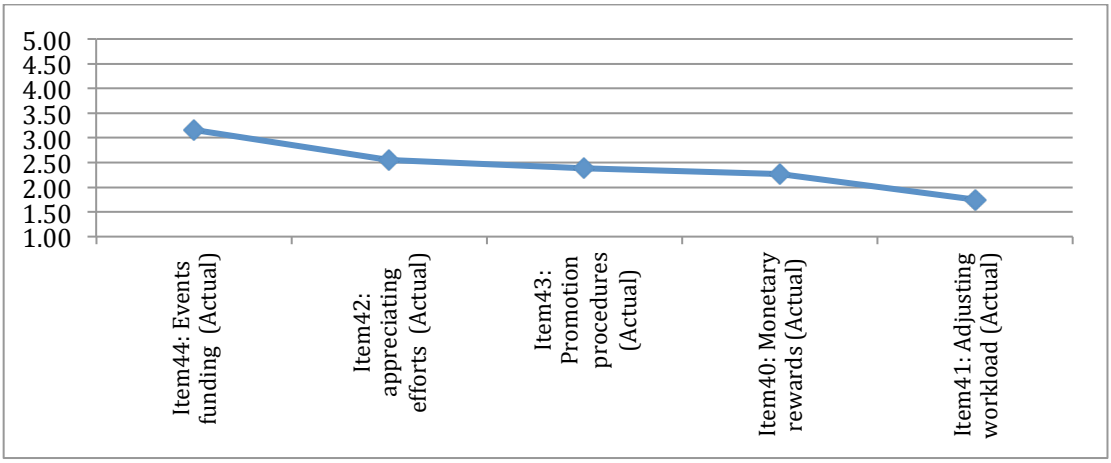
Question 1.7: To what extent are the required incentives provided?

Table 4.11 and Figure 4.12 present academic staff's assessment (n= 518) of the actual presence of five of the required institutional incentives which include the policies and procedures legislated by the university to encourage academic staff to participate in e-learning initiatives.

Table 4.11. Academic Staff's Assessment of The Actual Institutional Incentives

ITEM			Degree of Inst. Supp. Availabilty (Actual)					Mean	Std. Dev.	Rank*
			Always	Freq.	Occ.	Rarely	Never			
40	Developing monetary compensation schemes.	F	17	53	136	159	153	2.27	1.09	4
		%	3.3	10.2	26.3	30.7	29.5			
41	Adjusting traditional workload credits.	F	5	21	52	201	239	1.75	0.87	5
		%	1	4.1	10	38.8	46.1			
42	Appreciating academic staff participation in e-learning.	F	11	69	193	165	80	2.55	0.98	2
		%	2.1	13.3	37.3	31.9	15.4			
43	Taking into account academic staff efforts in the promotion processes.	F	13	48	145	230	82	2.38	0.94	3
		%	2.5	9.3	28	44.4	15.8			
44	Arranging funded travel to attend e-learning events.	F	42	130	255	53	38	3.16	0.97	1
		%	8.1	25.1	49.2	10.2	7.3			
		F	518	Institutional incentives (actual) section's Mean= 2.42 Std. Dev.= 0.78						
		%	100							

Figure 4.12. Academic Staff's Assessment of The Actual Institutional Incentives



The results in Table 4.11 and Figure 4.12 indicate that academic staff's assessments of actual presence of the section's items vary with means ranging between 1.75 and 3.16. More than one-third of academic staff agreed that their universities *always* (or *frequently*) arrange funded travel to attend e-learning events" (item 44). This type of support ranked highest with the only item rated as *occasionally* provided in the institutional incentives section (M=3.16 SD=0.97). On the other hand, academic staff reported required support was *rarely provided* in three items in this section.

More than 60% of academic staff believe that their universities *never* or *rarely* "Appreciate academic staff's participation in e-learning" (item 42, M=2.55 SD=0.98). Furthermore, academic staff reported that the provision of required support indicated in item 43, "Taking into account academic staff's efforts in the promotion processes" (M=2.38 SD=0.94) and item 40, "Developing monetary compensation schemes." (M=2.27 SD=1.09) was *rare*. According to academic staff's responses, this section includes the only one of the 44 questionnaire items rated as "*never*" provided. Nearly 85% of academic staff reported that their universities *never* (or *rarely*) "adjust traditional workload credits" when they offer e-learning courses (item 41, M= 1.75 SD=0.87). Generally, academic staff indicated that their universities *rarely* provide *institutional incentives* necessary to motivate them to adopt the VLE. This can be seen by the overall mean for the section (M=2.42 SD= 0.97).

1.8. The actual institutional support (all items and sections)

Table 4.12 and Figure 4.13 rank all the questionnaire's items (44 items - *actual presence* dimension) in descending order. It can be seen from Table 4.12 that all items' means ranged between 1.75 and 3.26. According to Table 4.4, all these means are located in the categories *never* (provide support) to *occasionally* (provide support). Surprisingly, no institutional support item was reported as *always* or *frequently* provided by the universities. Most importantly, the overall mean for institutional support (all 44 items) is 2.29 (SD=0.8) which clearly indicates *rare* institutional support.

Table 4.12. Academic Staff's Assessment and Ranking of The Actual Institutional Support

Item No.	Item	Section	Mean	Rank
Item16	Offering facilities to participate in e-learning (e.g. Laptops, tablet.etc).	Technical Support	3.26	**1**
Item44	Arranging funded travel to attend e-learning events.	Institutional Incentives	3.16	**2**
Item23	Organising TP to enhance using ICT in teaching.	Technical Training	3.15	**3**
Item11	Providing reliable technical infrastructure.	Technical Support	2.98	**4**
Item24	Organising TP to increase course management skills in the VLE.	Technical Training	2.95	**5**
Item3	Clarifying e-learning importance in the university strategic vision.	Supportive Institutional Practices	2.67	**6**
Item25	Organising TP to increase course content management skills in the VLE.	Technical Training	2.63	**7**
Item12	Offering user-friendly Virtual Learning Environments (VLE).	Technical Support	2.56	**8**
Item18	Providing authoring tools to design e-learning courses.	Pedagogical Support	2.55	**9**

Item No.	Item	Section	Mean	Rank
Item42	Appreciating academic staff participation in e-learning.	Institutional Incentives	2.55	**10**
Item1	Clarity of e-learning strategies.	Supportive Institutional Practices	2.43	**11**
Item26	Organising TP to increase my skills in using communication tools in the VLE.	Technical Training	2.40	**12**
Item43	Taking into account academic staff efforts in the promotion processes.	Institutional Incentives	2.38	**13**
Item9	E-learning initiatives are driven by researches' findings.	Supportive Institutional Practices	2.37	**14**
Item10	Schools' role in encouraging AS to participate in e-learning.	Supportive Institutional Practices	2.36	**15**
Item13	Ensuring continuous access to the VLE.	Technical Support	2.32	**16**
Item40	Developing monetary compensation schemes.	Institutional Incentives	2.27	**17**
Item28	Organising TP to increase assessments skills in the VLE.	Technical Training	2.27	**18**
Item4	Representing of academic staff in e-learning planning.	Supportive Institutional Practices	2.26	**19**
Item2	Stability of e-learning strategies.	Supportive Institutional Practices	2.23	**20**
Item 39	TP diversity in terms of durations (short term-long term).	Training Programmes Flexibility	2.22	**21**
Item19	Providing prepared pedagogical templates for e-learning course.	Pedagogical Support	2.20	**22**
Item 38	Organising TP in fixable dates.	Training Programmes Flexibility	2.16	**23**
Item 22	Establishing online communities to share e-learning experiences.	Pedagogical Support	2.14	**24**
Item29	Organising TP to improve instructional design skills.	Pedagogical Training	2.13	**25**
Item7	Enlightening AS about e-learning educational opportunities.	Supportive Institutional Practices	2.13	**26**
Item27	Organising TP to increase students' progress tracking skills in the VLE.	Technical Training	2.12	**27**
Item21	Producing guides to increase courses' pedagogical quality.	Pedagogical Support	2.12	**28**
Item31	Organising TP to enhance the interaction through e-learning.	Pedagogical Training	2.11	**29**
Item32	Organising TP to increase students' engagement through e-learning.	Pedagogical Training	2.08	**30**
Item37	TP diversity in terms of forms (e.g. one-to-one and team-based).	Training Programmes Flexibility	2.06	**31**
Item17	Facilitating cooperation with instructional designers.	Pedagogical Support	2.05	**32**
Item36	TP diversity in terms of means (e.g. face-to-face and online).	Training Programmes Flexibility	2.05	**33**
Item30	Organising TP to assist AS reconceptualising my role in e-learning environments.	Pedagogical Training	2.02	**34**
Item5	Encouraging institutional discussion during e-learning initiatives phases.	Supportive Institutional Practices	2.02	**35**
Item33	Organising TP to improve creating learner-centred learning strategies.	Pedagogical Training	2.01	**36**
Item34	Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	Pedagogical Training	2.00	**37**
Item8	Identifying the barriers of involvement in e-learning.	Supportive Institutional Practices	1.98	**38**
Item20	Running pedagogical consultations units.	Pedagogical Support	1.92	**39**
Item6	The provided support is keeping pace with e-learning programmes growth.	Supportive Institutional Practices	1.92	**40**
Item15	Running units for educational multimedia production.	Technical Support	1.90	**41**
Item14	Running a 24X7 help desk to provide support.	Technical Support	1.89	**42**
Item35	Designing TP based on accurate need assessments.	Training Programmes Flexibility	1.84	**43**
Item41	Adjusting traditional workload credits.	Institutional Incentives	1.75	**44**
Actual institutional support	**Mean= 2.29**	**Std. Dev.= 0.83**		

According to the means listed in Table 4.12, actual institutional support items can be divided into three main categories. Firstly, institutional support items which were rated by academic staff as *occasionally* provided includes the following seven items: Item 16, Offering facilities to participate in e-learning, *e.g*. laptops, tablet labs, *etc*. (M=3.26); Item 44, Arranging funded travel to attend e-learning events (M=3.16); Item 23 Organising training programmes to enhance the use of ICT in teaching (M=3.15); Item 11, Providing reliable technical infrastructure (M=2.98); Item 24, Organising training programmes to increase course management skills in the VLE (M=2.95); Item 3, Clarifying e-learning importance in the university's strategic vision (M=2.67); and Item 25, Organising training programmes to increase course content management skills in the VLE (M=2.63).

The second category, institutional support items, which were rated by academic staff as *rarely* provided includes thirty-six items. The five highest items in this category are: Item 12, Offering user-friendly Virtual Learning Environments (M=2.56); Item 18, Providing authoring tools to design e-learning courses (M=2.55); Item 42, Appreciating academic staff participation in e-learning (M=2.55); Item 1, Clarity of e-learning strategies (M=2.43); and Item 26, Organising training programmes to increase skills in using communication tools in the VLE (M= 2.40). The lowest five items in this category are: Item 20, Running pedagogical consultation units (M=1.92); Item 6, Ensuring the provided support keeps pace with e-learning programmes growth (M=1.92); Item 15, Running units for educational multimedia production (M=1.90); Item 14, Running a 24/7 help desk to provide support (M=1.89); and Item 35, Designing training programmes based on accurate needs assessments (M= 1.84).

Finally, the third category includes institutional support items which were rated by academic staff as *never* provided and consist of only one item (item 41) Adjusting traditional workload credits (M=1.75).

Figure 4.13. The actual institutional support

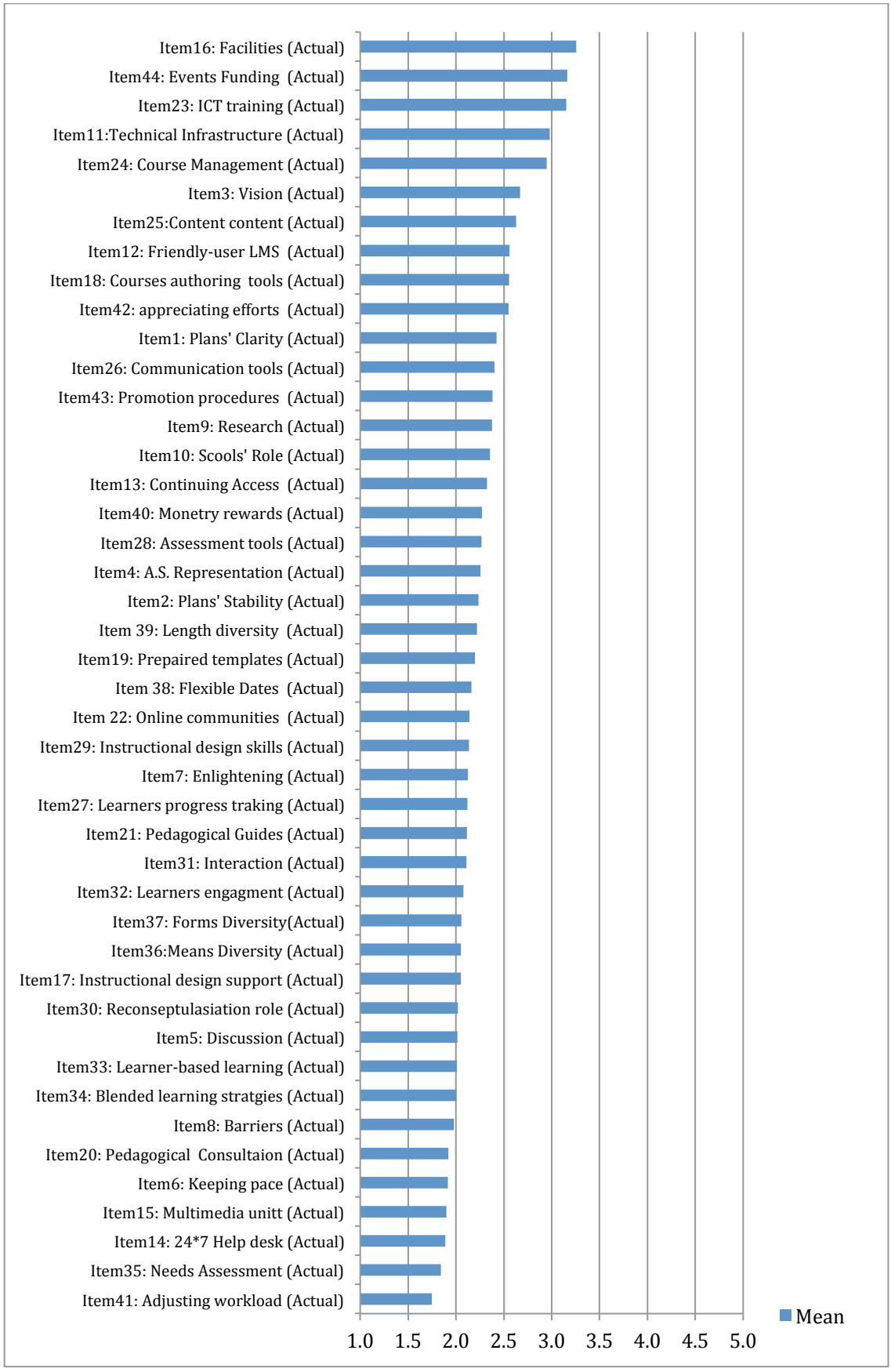
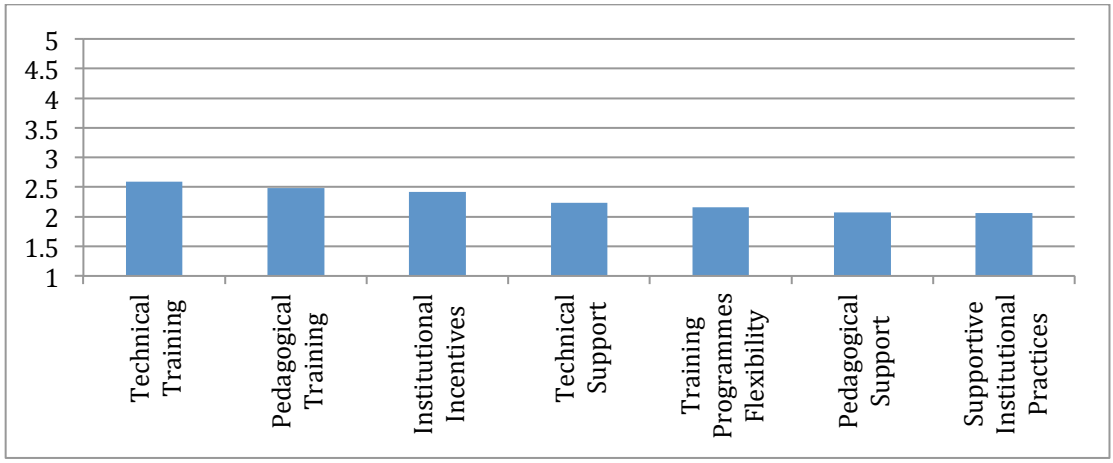


Table 4.13 and Figure 4.14 present descriptive information (*i.e.* means, standard deviation and ranks) for all the institutional sections (seven sections - actual presence dimension): supportive institutional practices, technical support, pedagogical support, technical training, pedagogical training, training programs flexibility and institutional incentives.

Table 4.13. Academic Staff's Assessment of The Actual Institutional Support Sections

Section No.	Section	Mean	Std. Dev.	rank
1	Supportive Institutional Practices	2.24	0.85	4
2	Technical Support	2.48	0.91	2
3	Pedagogical Support	2.16	0.85	5
4	Technical Training	2.59	0.95	1
5	Pedagogical Training	2.06	0.95	7
6	Training Programmes Flexibility	2.07	0.94	6
7	Institutional Incentives	2.42	0.78	3
Actual Institutional Support: **Mean**= 2.29 Std. Dev.= **0.83**				

Figure 4.14. Academic Staff's Assessment of The Actual Institutional Support Sections



It can be seen from Table 4.13 that the means of all sections ranged between 2.06 and 2.59. According to Table 4.4, all these means are located in the category *rarely* provided support. Very close from the next category (*occasionally*), technical training (6 items) ranked first with a mean of 2.59 followed by technical support (6 items, M=2.48). Institutional incentives (5 items, M= 2.42) ranked third, followed by supportive institutional practices (10 items, M=2.24) which ranked fourth. Fifth was pedagogical support (6 items) with a mean of

2.16 followed by training program flexibility (5 items, M=2.07) and finally pedagogical training (6 items) with a mean of 2.06.

4.2. The Differences in actual institutional support

This section aims to present the results of the second question that investigated the differences in academic staff responses according to university, faculty, gender, main purpose of using VLE and attitude toward participation in e-learning.

Question 2. Are there statistically significant differences in academic staff's perceptions about actual institutional support according to: university, faculty, gender, purpose of using the VLE and attitude towards e-learning? (Five sub-questions)

As was explained in Chapters One and Three this question consists of five sub-questions to obtain data about the universities, faculties, gender, purpose of use and attitude towards e-learning.

Question 2.1: Are there statistically significant differences in academic staff's perceptions about actual institutional support according to university?

The following tables show the means of 44 items (Table 4.14) and seven sections (Table 4.15) according to the responses of academic staff in five universities in Saudi Arabia (Alpha University (AU), Beta University (BU), Gamma University (GU) , Delta University (DU), Epsilon University (EU)).

Table 4.14. Academic Staff 's Assessment of the Actual Institutional Support Items in the Five Universities

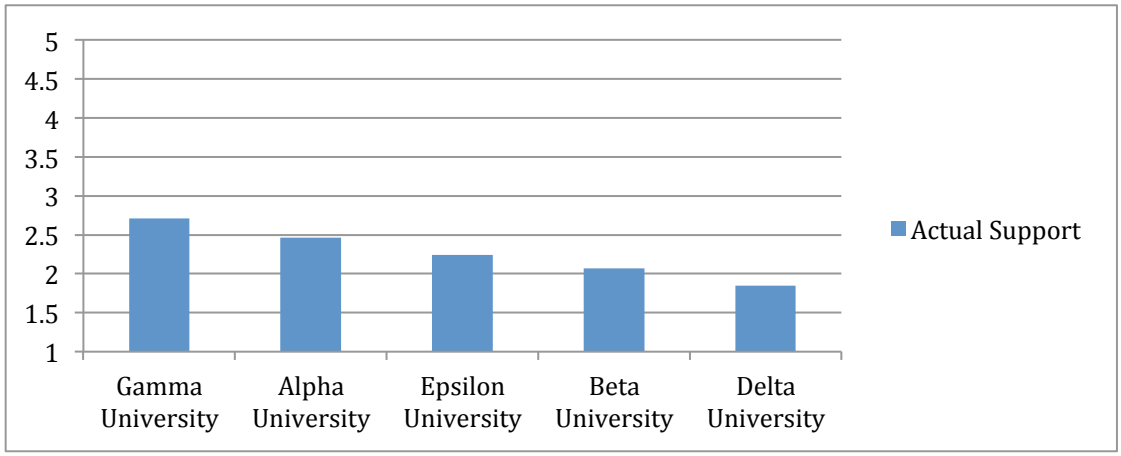
No	Sec.	Item	AU (M)	AU (R)	BU (M)	BU (R)	GU (M)	GU (R)	DU (M)	DU (R)	EU (M)	EU (R)	ALL M	ALL R
1	Supportive Institutional Practices	Clarity of e-learning strategies.	2.50	15	2.13	14	3.15	10	1.87	18	2.46	8	2.43	11
2		Stability of e-learning strategies.	2.36	22	1.92	29	2.61	21	1.95	14	2.31	15	2.23	20
3		Clarifying e-learning importance in the university strategic vision.	2.90	6	2.18	10	3.25	6	2.30	4	2.68	7	2.67	6
4		Representing of academic staff in e-learning planning.	2.28	26	2.09	16	2.52	24	2.03	10	2.38	13	2.26	19
5		Encouraging institutional discussion during e-learning initiatives phases.	2.09	38	1.80	36	2.41	32	1.76	21	2.00	31	2.02	35
6		The provided support is keeping pace with e-learning programmes growth.	2.09	39	1.60	42	2.44	27	1.64	33	1.74	42	1.92	40
7		Enlightening AS about e-learning educational opportunities.	2.24	27	2.04	18	2.39	37	1.74	22	2.15	22	2.13	26
8		Identifying the barriers of involvement in e-learning.	2.08	40	1.91	32	2.15	42	1.70	24	2.00	32	1.98	38

No	Sec.	Item	AU (M)	AU (R)	BU (M)	BU (R)	GU (M)	GU (R)	DU (M)	DU (R)	EU (M)	EU (R)	ALL M	ALL R
9		E-learning initiatives are driven by researches' findings.	2.60	12	2.25	8	2.80	16	1.84	20	2.23	17	2.37	14
10		Departments' role in encouraging AS to participate in e-learning.	2.58	13	2.03	20	3.02	11	1.90	16	2.15	23	2.36	15
11	Technical Support	Providing reliable technical infrastructure.	3.22	5	2.73	5	3.54	4	2.40	3	2.88	4	2.98	4
12		Offering user-friendly Virtual Learning Environments (VLE).	2.89	7	2.23	9	3.22	8	1.99	11	2.28	16	2.56	8
13		Ensuring continuous access to the VLE.	2.68	10	1.95	26	2.73	17	1.67	29	2.45	10	2.32	16
14		Running a 24X7 help desk to provide support.	2.08	41	1.79	37	2.14	43	1.58	39	1.73	43	1.89	42
15		Running units for educational multimedia production.	2.01	42	1.71	40	2.40	34	1.56	41	1.75	41	1.90	41
16		Offering facilities to participate in e-learning (e.g. Laptops, tablet..etc).	3.66	1	3.09	1	3.79	1	2.30	5	3.18	1	3.26	1
17	Pedagogical Support	Facilitating cooperation with instructional designers.	2.22	29	1.99	23	2.33	39	1.65	31	1.95	38	2.05	32
18		Providing authoring tools to design e-learning courses.	2.71	9	2.37	7	3.17	9	1.98	13	2.44	11	2.55	9
19		Providing prepared pedagogical templates for e-learning course.	2.42	21	2.00	22	2.73	18	1.56	42	2.14	26	2.20	22
20		Running pedagogical consultations units.	2.11	37	1.70	41	2.13	44	1.59	37	2.03	30	1.92	39
21		Producing guides to increase courses' pedagogical quality.	2.14	36	1.97	24	2.53	22	1.74	23	2.18	19	2.12	28
22		Establishing online communities to share e-learning experiences.	2.20	32	2.09	17	2.51	25	1.69	25	2.14	27	2.14	24
23	Technical Training	Organising TP to enhance using ICT in teaching.	3.37	2	3.01	2	3.63	3	2.48	2	3.13	2	3.15	3
24		Organising TP to increase course management skills in the VLE.	3.24	4	2.86	3	3.44	5	2.17	7	2.79	5	2.95	5
25		Organising TP to increase course content management skills in the VLE.	2.84	8	2.44	6	3.23	7	2.06	9	2.44	12	2.63	7
26		Organising TP to increase my skills in using communication tools in the VLE.	2.55	14	2.18	11	2.89	13	1.99	12	2.34	14	2.40	12
27		Organising TP to increase students' progress tracking skills in the VLE.	2.34	24	1.83	34	2.64	19	1.69	26	2.00	33	2.12	27
28		Organising TP to increase assessments skills in the VLE.	2.44	19	2.11	15	2.64	20	1.86	19	2.19	18	2.27	18
29	Pedagogical Training	Organising TP to improve instructional design skills.	2.49	17	1.92	30	2.39	38	1.53	43	2.16	20	2.13	25
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	2.21	30	1.76	39	2.47	26	1.59	38	1.98	35	2.02	34
31		Organising TP to enhance the interaction through e-learning.	2.33	25	1.92	31	2.43	30	1.63	34	2.15	24	2.11	29
32		Organising TP to increase students' engagement through e-learning.	2.24	28	1.93	28	2.40	35	1.65	32	2.09	28	2.08	30
33		Organising TP to improve creating learner-centred learning strategies.	2.21	31	1.86	33	2.44	28	1.50	44	1.90	39	2.01	36
34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	2.16	35	1.78	38	2.42	31	1.60	35	2.00	34	2.00	37
35	TP Flexibility	Designing TP based on accurate need assessments.	1.95	43	1.54	43	2.26	40	1.58	40	1.86	40	1.84	43
36		TP diversity in terms of means (e.g. face-to-face and online).	2.19	34	1.83	35	2.53	23	1.69	27	1.96	36	2.05	33
37		TP diversity in terms of forms (e.g. one-to-one and team-based).	2.20	33	1.95	27	2.41	33	1.66	30	1.96	37	2.06	31
38		Organising TP in fixable dates.	2.45	18	2.04	19	2.40	36	1.69	28	2.08	29	2.16	23
39		TP diversity in terms of durations (short term-long term).	2.36	23	2.16	12	2.44	29	1.88	17	2.16	21	2.22	21
40	Institutional Incentives	Developing monetary compensation schemes.	2.44	20	1.96	25	2.81	15	1.93	15	2.15	25	2.27	17
41		Adjusting traditional workload credits.	1.84	44	1.47	44	2.18	41	1.60	36	1.64	44	1.75	44
42		Appreciating academic staff participation in e-learning.	2.68	11	2.14	13	2.92	12	2.26	6	2.79	6	2.55	10
43		Taking into account academic staff efforts in the promotion processes.	2.50	16	2.02	21	2.86	14	2.07	8	2.46	9	2.38	13
44		Arranging funded travel to attend e-learning events.	3.36	3	2.85	4	3.66	2	2.85	1	3.03	3	3.16	2
ALL			2.46		2.07		2.71		1.85		2.24		2.29	

Table 4.15. Academic Staff 's Assessment of the Actual Institutional Support Sections in the Five Universities

University	N	Mean and Rank									Std. Deviation
		SIP	TS	PS	TT	PT	TF	II	M	R	
Alpha	140	2.37	2.76	2.30	2.80	2.27	2.23	2.56	2.46	2	0.73
		4	2	5	1	6	7	3			
Beta	116	2.00	2.25	2.02	2.41	1.86	1.91	2.09	2.07	4	0.69
		5	2	4	1	7	6	3			
Gamma	96	2.67	2.97	2.57	3.07	2.42	2.41	2.89	2.71	1	0.65
		4	2	5	1	6	7	3			
Delta	86	1.87	1.92	1.70	2.04	1.59	1.70	2.14	1.85	5	0.69
		4	3	5	2	7	6	1			
Epsilon	80	2.21	2.38	2.14	2.48	2.05	2.01	2.41	2.24	3	1.11
		4	3	5	1	6	7	2			
ALL	518	2.24	2.48	2.16	2.59	2.06	2.07	2.42	2.29		0.83
		4	2	5	1	7	6	3			

Figure 4.15. Academic Staff 's Assessment of the Actual Institutional Support Items in the Five Universities



From Table 4.15 and Figure 4.15, it is clear that Gamma University provides more institutional support (M=2.71 SD=0.65) than the other universities. According to ranges mentioned in Table 4.4 which explains the actual institutional support means, Gamma University is the only university which provides the required institutional support *occasionally*. On the other hand, academic staff in the other four universities Alpha (M=2.46 SD=0.73), Epsilon (M=2.24 SD=1.11), Beta (M=2.07 SD=0.69) and Delta (M=1.85 SD=0.69) indicated that the required institutional support is *rarely* provided by their universities.

In general, academic staff in the five universities rated the actual institutional support sections in a convergent manner with the majority of sections rated by academic staff as *rarely* provided. The exceptions can be found in Alpha University where academic staff reported that technical training (M=2.80) and

technical support (2.76) are *occasionally* provided. In addition, academic staff in Gamma University reported that technical training (M= 3.07), technical support (M= 2.97) institutional incentives (M= 2.89) and supportive institutional practices (M= 2.67) are *occasionally* provided.

Additionally, the agreement in academic staff's rating of institutional support sections appears in the sections' ranking. For example, technical training ranked first in four universities (Alpha , Beta, Gamma and Epsilon) and second in one university (Delta). Furthermore, technical support ranked second in three universities (Alpha, Beta and Gamma), and third rank in two universities (Delta and Epsilon). Likewise, training flexibility ranked sixth in two universities (Beta and Delta) and seventh in three universities (Alpha, Gamma and Epsilon). Pedagogical training ranked sixth in three universities and seventh in two universities.

In terms of institutional support items, it can be noted from the means presented in Table 4.14 that academic staff in Gamma University rated actual presence of 42 institutional support items higher than the other four universities. Meanwhile, academic staff in Alpha University rated actual presence of two institutional support items (items 29 and 38) higher than the other universities. On the other hand, academic staff in Delta University rated actual presence of 36 institutional support items lower than the other four universities. Meanwhile, academic staff in Beta University rated actual presence of eight institutional support items lower than the other four universities.

To find out if these differences are statistically significant, one way ANOVA was used; the result indicates that there were statistically *significant differences* between universities in actual institutional support ($F=18.227$, $p<0.05$). Furthermore, there were statistically *significant differences* between universities in all seven sections of actual institutional support (Table 4.16).

Table 4.16. ONE-WAY ANOVA's Results (Differences Between Universities-Actual)

Section		Sum of Squares	df	Mean Square	F	Sig.
Supportive Institutional Practices	Between Groups	38.947	4	9.737	14.786	.000
	Within Groups	337.822	513	0.659		
	Total	376.769	517			
Technical Support	Between Groups	67.817	4	16.954	23.937	.000
	Within Groups	363.359	513	0.708		
	Total	431.177	517			
Pedagogical Support	Between Groups	38.88	4	9.72	14.941	.000
	Within Groups	333.726	513	0.651		
	Total	372.606	517			

Technical Training	Between Groups	59.401	4	14.85	18.812	.000
	Within Groups	404.971	513	0.789		
	Total	464.372	517			
Pedagogical Training	Between Groups	42.842	4	10.711	13.085	.000
	Within Groups	419.898	513	0.819		
	Total	462.74	517			
Training Flexibility	Between Groups	29.697	4	7.424	8.96	.000
	Within Groups	425.085	513	0.829		
	Total	454.782	517			
Institutional Incentives	Between Groups	43.23	4	10.808	20.271	.000
	Within Groups	273.501	513	0.533		
	Total	316.731	517			
All Sections	Between Groups	43.811	4	10.953	18.227	.000
	Within Groups	308.263	513	0.601		
	Total	352.074	517			

Scheffe's tests were used to determine the source of difference; Table 4.17 presents the results which indicate that there were statistically significant differences in actual institutional support between Alpha University (M= 2.46) and Beta University (M= 2.07), Alpha University (M= 2.46) and Delta University (1.85), Gamma (2.71) and Beta University (M= 2.07), Gamma University (2.71) and Delta University (1.85), Gamma University (2.71) and Epsilon University (2.24) and finally between Epsilon University (2.24) and Delta University (1.85). The following table shows the Scheffe's test results for the seven institutional support sections.

Table 4.17. Scheffe's Results (Differences Between Universities- Actual)

Section One

University Mean	AU 2.37	BU 2.00	GU 2.67	DU 1.87	EU 2.21
AU 2.37					
BU 2.00	0.01*				
GU 2.67	0.10	0.00*			
DU 1.87	0.00*	0.89	0.00*		
EU 2.21	0.72	0.52	0.01*	0.13	

Section two

University Mean	AU 2.76	BU 2.25	GU 2.97	DU 1.92	EU 2.38
AU 2.76					
BU 2.25	0.00*				
GU 2.97	0.46	0.00*			
DU 1.92	0.00*	0.10	0.00*		
EU 2.38	0.04*	0.91	0.00*	0.02*	

Section three

University Mean	AU 2.30	BU 2.02	GU 2.57	DU 1.70	EU 2.14
AU 2.30					
BU 2.02	0.11				
GU 2.57	0.19	0.00*			
DU 1.70	0.00*	0.10	0.02*		
EU 2.14	0.75	0.90	0.02*	0.02*	

Section four

University Mean	AU 2.80	BU 2.41	GU 3.07	DU 2.04	EU 2.84
AU 2.80					
BU 2.41	0.02*				
GU 3.07	0.23	0.00*			
DU 2.04	0.00*	0.08	0.00*		
EU 2.84	0.17	0.99	0.00*	0.04*	

Section five

University Mean	AU 2.27	BU 1.86	GU 2.42	DU 1.59	EU 2.05
AU 2.27					
BU 1.86	0.01*				
GU 2.42	0.82	0.00*			
DU 1.59	0.00*	0.33	0.00*		
EU 2.05	0.53	0.74	0.11	0.03*	

Section six

University Mean	AU 2.23	BU 1.91	GU 2.41	DU 1.70	EU 2.01
AU 2.23					
BU 1.91	0.09				
GU 2.41	0.71	0.00*			
DU 1.70	0.00*	0.64	0.00*		
EU 2.01	0.54	0.97	0.08	0.33	

Section seven

University Mean	AU 2.56	BU 2.09	GU 2.89	DU 2.14	EU 2.41
AU 2.56					
BU 2.09	0.00*				
GU 2.89	0.03*	0.00*			
DU 2.14	0.00*	0.99	0.00*		
EU 2.41	0.71	0.05*	0.00*	0.23	

All Sections

University Mean	AU 2.46	BU 2.07	GU 2.71	DU 1.85	EU 2.24
AU 2.46					
BU 2.07	0.00*				
GU 2.71	0.21	0.00*			
DU 1.85	0.00*	0.40	0.00*		
EU 2.24	0.36	0.71	0.00*	0.04*	

Question 2.2: Are there statistically significant differences in academic staff's perceptions about actual institutional support according to faculty?

The following tables show the means of 44 items (Table 4.18) and seven sections (Table 4.19) according to the responses of academic staff in four faculties from five universities in Saudi Arabia (Humanities (Hu.), Business (Biz), Science (Sci) and Engineering (Eng)).

Table 4.18. Academic Staff 's Assessment of the Actual Institutional Support Items in the Four Faculties

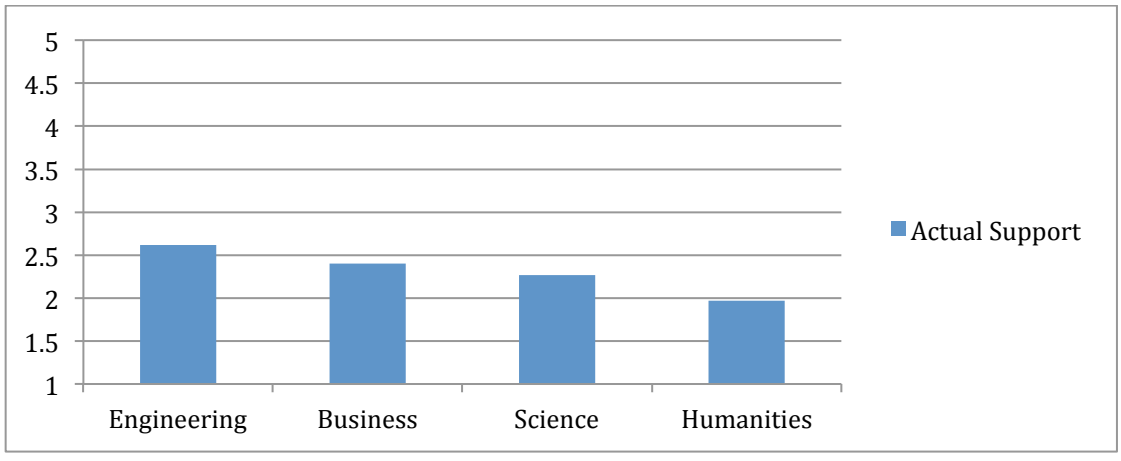
No	Sec.	Item	Hu (M)	Hu (R)	Biz (M)	Biz (R)	Sci. (M)	Sci. (R)	Eng. (M)	Eng. (R)	All. M	All. R
1	Supportive Institutional Practices	Clarity of e-learning strategies.	2.13	9	2.62	10	2.40	13	2.67	14	2.43	11
2		Stability of e-learning strategies.	1.91	19	2.34	20	2.25	18	2.55	22	2.23	20
3		Clarifying e-learning importance in the university strategic vision.	2.40	6	2.77	6	2.70	6	2.88	10	2.67	6
4		Representing of academic staff in e-learning planning.	1.88	21	2.43	16	2.21	20	2.65	15	2.26	19
5		Encouraging institutional discussion during e-learning initiatives phases.	1.79	30	2.21	26	1.94	34	2.23	39	2.02	35
6		The provided support is keeping pace with e-learning programmes growth.	1.71	37	2.01	40	1.84	41	2.20	40	1.92	40
7		Enlightening AS about e-learning educational opportunities.	1.81	26	2.35	19	2.07	29	2.41	29	2.13	26
8		Identifying the barriers of involvement in e-learning.	1.72	36	2.21	27	1.92	37	2.16	42	1.98	38
9		E-learning initiatives are driven by researches' findings.	2.05	12	2.50	14	2.41	12	2.63	16	2.37	14
10		Departments' role in encouraging AS to participate in e-learning.	1.96	16	2.57	12	2.26	17	2.81	12	2.36	15
11	Technical Support	Providing reliable technical infrastructure.	2.53	5	3.21	4	2.99	5	3.35	4	2.98	4
12		Offering user-friendly Virtual Learning Environments (VLE).	2.12	10	2.68	9	2.59	9	2.99	7	2.56	8
13		Ensuring continuous access to the VLE.	1.94	18	2.62	11	2.28	15	2.59	20	2.32	16
14		Running a 24X7 help desk to provide support.	1.64	42	2.03	39	1.90	39	2.06	44	1.89	42
15		Running units for educational multimedia production.	1.70	39	2.01	41	1.81	42	2.17	41	1.90	41
16		Offering facilities to participate in e-learning (e.g. Laptops, tablet.etc).	2.79	2	3.37	1	3.44	1	3.53	1	3.26	1
17	Pedagogical Support	Facilitating cooperation with instructional designers.	1.71	38	2.18	33	2.08	28	2.36	33	2.05	32
18		Providing authoring tools to design e-learning courses.	2.17	8	2.75	7	2.54	10	2.90	9	2.55	9
19		Providing prepared pedagogical templates for e-learning course.	1.85	23	2.26	24	2.19	23	2.62	17	2.20	22
20		Running pedagogical consultations units.	1.66	41	2.01	42	1.88	40	2.24	38	1.92	39
21		Producing guides to increase courses' pedagogical quality.	1.77	31	2.19	31	2.10	27	2.52	23	2.12	28
22		Establishing online communities to share e-learning experiences.	1.84	24	2.17	35	2.14	24	2.52	24	2.14	24
23	Technical Training	Organising TP to enhance using ICT in teaching.	2.75	3	3.26	2	3.26	2	3.44	3	3.15	3
24		Organising TP to increase course management skills in the VLE.	2.60	4	3.08	5	3.00	4	3.21	5	2.95	5
25		Organising TP to increase course content management skills in the VLE.	2.31	7	2.74	8	2.61	8	2.98	8	2.63	7
26		Organising TP to increase my skills in using communication tools in the VLE.	2.03	13	2.50	15	2.42	11	2.80	13	2.40	12
27		Organising TP to increase students' progress tracking skills in the VLE.	1.87	22	2.19	32	2.07	30	2.44	28	2.12	27
28		Organising TP to increase assessments skills in the VLE.	1.96	17	2.42	18	2.21	21	2.61	18	2.27	18
29	Pedagogical Training	Organising TP to improve instructional design skills.	1.84	25	2.20	30	2.12	26	2.48	26	2.13	25
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	1.75	34	2.13	37	1.96	33	2.36	34	2.02	34
31		Organising TP to enhance the interaction through e-learning.	1.81	27	2.23	25	2.14	25	2.37	32	2.11	29
32		Organising TP to increase students' engagement through e-learning.	1.76	33	2.21	28	2.06	31	2.40	30	2.08	30
33		Organising TP to improve creating learner-centred learning strategies.	1.68	40	2.12	38	2.01	32	2.34	35	2.01	36

No	Sec.	Item	Hu (M)	Hu (R)	Biz (M)	Biz (R)	Sci. (M)	Sci. (R)	Eng. (M)	Eng. (R)	All. M	All. R
34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	1.75	35	2.17	36	1.91	38	2.31	37	2.00	37
35	TP Flexibility	Designing TP based on accurate need assessments.	1.60	43	1.77	44	1.79	43	2.32	36	1.84	43
36		TP diversity in terms of means (e.g. face-to-face and online).	1.77	32	2.18	34	1.94	35	2.46	27	2.05	33
37		TP diversity in terms of forms (e.g. one-to-one and team-based).	1.81	28	2.21	29	1.94	36	2.39	31	2.06	31
38		Organising TP in fixable dates.	1.81	29	2.27	23	2.20	22	2.49	25	2.16	23
39		TP diversity in terms of durations (short term-long term).	1.89	20	2.31	21	2.22	19	2.57	21	2.22	21
40	Institutional Incentives	Developing monetary compensation schemes.	1.99	15	2.29	22	2.28	16	2.61	19	2.27	17
41		Adjusting traditional workload credits.	1.52	44	1.83	43	1.66	44	2.09	43	1.75	44
42		Appreciating academic staff participation in e-learning.	2.09	11	2.51	13	2.64	7	3.08	6	2.55	10
43		Taking into account academic staff efforts in the promotion processes.	2.00	14	2.43	17	2.39	14	2.83	11	2.38	13
44		Arranging funded travel to attend e-learning events.	2.81	1	3.25	3	3.19	3	3.52	2	3.16	2
ALL			1.97		2.40		2.27		2.62		2.29	

Table 4.19. Academic Staff 's Assessment of the Actual Institutional Support Sections in the Four Faculties

Faculty	N	Mean and Rank									Std. Deviation
		SIP	TS	PS	TT	PT	TF	II	M	R	
Humanities	149	1.94	2.12	1.83	2.25	1.76	1.78	2.08	1.97	4	0.78
		4	2	5	1	7	6	3			
Business	115	2.40	2.65	2.26	2.70	2.18	2.15	2.46	2.40	2	0.72
		4	2	5	1	6	7	3			
Science	145	2.20	2.50	2.15	2.59	2.03	2.02	2.43	2.27	3	0.78
		4	2	5	1	6	7	3			
Engineering	109	2.52	2.78	2.53	2.91	2.38	2.44	2.83	2.62	1	0.90
		5	3	4	1	7	6	2			
ALL	518	2.24	2.48	2.16	2.59	2.06	2.07	2.42	2.29		0.83
		4	2	5	1	7	6	3			

Figure 4.16. Academic Staff 's Assessment of the Actual Institutional Support Sections in the Four Faculties



From Table 4.19 and Figure 4.16, it can be seen that only the academic staff in the faculties of Engineering indicated that their universities *occasionally* provide institutional support (M=2.62 SD=0.90). On the other hand, academic staff in the

other faculties, Business (M=2.40 SD=0.73), Science (M=2.27 SD=0.78) and Humanities (M=1.97 SD=0.78), indicated that their universities *rarely* provide the required institutional support.

In general, academic staff in the four faculties rated the actual institutional support sections in a convergent manner with the majority of sections being rated by academic staff as *rarely* provided. The exceptions can be found in the responses of academic staff in the Engineering faculties who reported that technical training (M=2.91), institutional incentives (M=2.83) and technical support (M=2.78) are *occasionally* provided. In addition, academic staff in the Business faculties reported that technical support (M=2.65) is *occasionally* provided.

Likewise, this agreement in the academic staff's rating of institutional support sections appears in the sections' ranking. For example, technical training ranked highest in all four faculties. Furthermore, technical support ranked second in three faculties and was ranked third by academic staff in the Engineering faculties. Similarly, training flexibility ranked sixth in two faculties (Humanities and Engineering) and seventh in two faculties (Business and Science). Pedagogical training ranked sixth in two faculties (Business and Science) and seventh in the other two (Humanities and Engineering).

In terms of institutional support items, it can be noted from the means presented in Table 4.18 that academic staff in the Engineering faculties rated actual presence of 41 institutional support items higher than the other faculties. Meanwhile, academic staff in the Business faculties rated actual presence of three institutional support items (items 8, 13 and 18) higher than the other faculties. On the other hand, academic staff in the Humanities faculties rated actual presence of all 44 institutional support items lower than the other faculties.

To find out if these differences are statistically significant, one way ANOVA was used; the result indicates that there were statistically *significant differences* between faculties in actual institutional support ($F=15.319$, $p<0.05$). Furthermore, there were statistically *significant differences* between faculties in all seven sections of actual institutional support (Table 4.20).

Table 4.20. ONE-WAY ANOVA's Results (Differences Between Faculties- Actual)

Section		Sum of Squares	df	Mean Square	F	Sig.
Supportive Institutional Practices	Between Groups	25.468	3	8.489	12.421	.000
	Within Groups	351.301	514	.683		
	Total	376.769	517			
Technical Support	Between Groups	32.587	3	10.862	14.007	.000
	Within Groups	398.590	514	.775		
	Total	431.177	517			
Pedagogical Support	Between Groups	31.868	3	10.623	16.024	.000
	Within Groups	340.738	514	.663		
	Total	372.606	517			
Technical Training	Between Groups	29.616	3	9.872	11.671	.000
	Within Groups	434.755	514	.846		
	Total	464.372	517			
Pedagogical Training	Between Groups	25.683	3	8.561	10.068	.000
	Within Groups	437.057	514	.850		
	Total	462.740	517			
Training Flexibility	Between Groups	29.260	3	9.753	11.781	.000
	Within Groups	425.523	514	.828		
	Total	454.782	517			
Institutional Incentives	Between Groups	35.260	3	11.753	21.463	.000
	Within Groups	281.471	514	.548		
	Total	316.731	517			
All Sections	Between Groups	28.896	3	9.632	15.319	.000
	Within Groups	323.178	514	.629		
	Total	352.074	517			

Scheffe's tests were used to determine the source of difference; Table 4.21 presents the results which indicate that there were statistically significant differences in actual institutional support between the Humanities faculties (M= 1.97) and Business faculties (M= 2.40), Humanities faculties (M= 1.97) and Science faculties (M= 2.27), Humanities faculties (M= 1.97) and Engineering faculties (M= 2.62) and finally between Science faculties (M= 2.27) and Engineering faculties (M= 2.62). The following table shows the Scheffe's test result for the seven institutional support sections.

Table 4.21. Scheffe's Results (Differences Between Faculties- Actual).

Section One

Faculty Mean	Hu 1.94	Biz. 2.40	Sci. 2.20	Eng. 2.52
Hu 1.94				
Biz. 2.40	0.00*			
Sci. 2.20	0.06	0.29		
Eng. 2.52	0.00*	0.76	0.03*	

Section two

Faculty Mean	Hu 2.12	Biz. 2.65	Sci. 2.50	Eng. 2.78
Hu 2.12				
Sci. 2.50	0.00*			
Sci. 2.20	0.00*	0.60		
Eng. 2.78	0.00*	0.75	0.10	

Section three

Faculty Mean	Hu 1.83	Biz. 2.26	Sci. 2.15	Eng. 2.53
Hu 1.83				
Biz. 2.26	0.00*			
Sci. 2.15	0.01*	0.78		
Eng. 2.53	0.00*	0.11	0.01*	

Section four

Faculty Mean	Hu 2.25	Biz. 2.70	Sci. 2.59	Eng. 2.91
Hu 2.25				
Biz. 2.70	0.00*			
Sci. 2.59	0.02*	0.85		
Eng. 2.91	0.00*	0.38	0.06	

Section five

Faculty Mean	Hu 1.76	Biz. 2.18	Sci. 2.03	Eng. 2.38
Hu 1.76				
Biz. 2.18	0.01*			
Sci. 2.03	0.10	0.68		
Eng. 2.38	0.00*	0.45	0.04*	

Section six

Faculty Mean	Hu 1.78	Biz. 2.15	Sci. 2.02	Eng. 2.44
Hu 1.78				
Biz. 2.15	0.01*			
Sci. 2.02	0.16	0.72		
Eng. 2.44	0.00*	0.12	0.00*	

Section seven

Faculty Mean	Hu 2.08	Biz. 2.46	Sci. 2.43	Eng. 2.83
Hu 2.08				
Biz. 2.46	0.00*			
Sci. 2.43	0.00*	0.99		
Eng. 2.83	0.00*	0.00*	0.00*	

All Section

Faculty Mean	Hu 1.97	Biz. 2.40	Sci. 2.27	Eng. 2.62
Hu 1.97				
Biz. 2.40	0.00*			
Sci. 2.27	0.01*	0.62		
Eng. 2.62	0.00*	0.26	0.01*	

Question 2.3: Are there statistically significant differences in academic staff's perceptions about actual institutional support according to gender?

The following tables show means of 44 items (Table 4.22) and seven sections (Table 4.23) according to responses of male and female academic staff in five universities in Saudi Arabia.

Table 4.22. Male and Female Academic Staff 's Assessment of the Actual Institutional Support

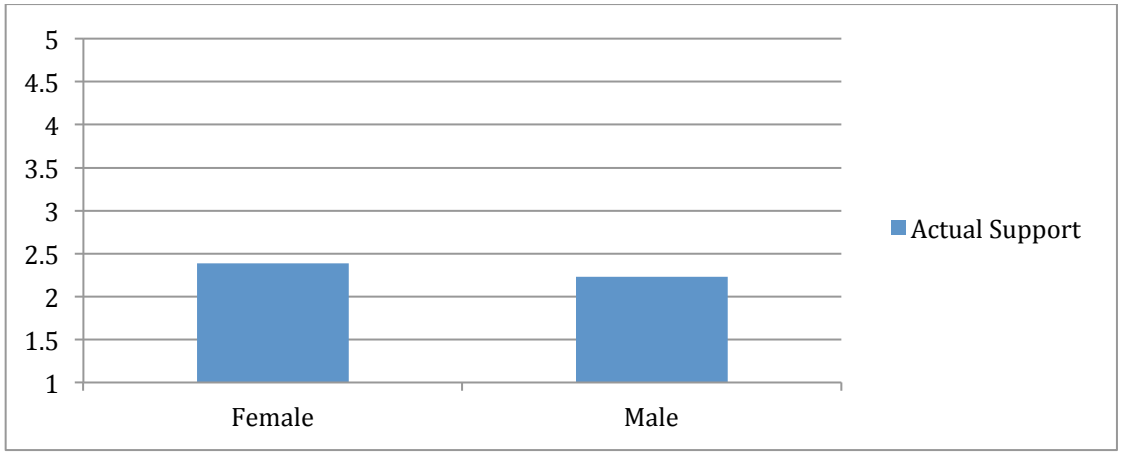
No	Sec.	Item	Male (M)	Male (R)	Female (M)	Female (R)	All. M	All. R
1	Supportive Institutional Practices	Clarity of e-learning strategies.	2.38	11	2.52	12	2.43	11
2		Stability of e-learning strategies.	2.23	18	2.24	26	2.23	20
3		Clarifying e-learning importance in the university strategic vision.	2.61	6	2.77	7	2.67	6
4		Representing of academic staff in e-learning planning.	2.24	17	2.30	20	2.26	19
5		Encouraging institutional discussion during e-learning initiatives phases.	1.97	34	2.09	35	2.02	35
6		The provided support is keeping pace with e-learning programmes growth.	1.91	40	1.93	40	1.92	40
7		Enlightening AS about e-learning educational opportunities.	2.10	24	2.19	30	2.13	26
8		Identifying the barriers of involvement in e-learning.	2.00	31	1.94	39	1.98	38
9		E-learning initiatives are driven by researches' findings.	2.28	16	2.54	11	2.37	14
10		Departments' role in encouraging AS to participate in e-learning.	2.29	15	2.48	16	2.36	15
11	Technical Support	Providing reliable technical infrastructure.	2.95	4	3.04	5	2.98	4
12		Offering user-friendly Virtual Learning Environments (VLE).	2.54	7	2.59	10	2.56	8
13		Ensuring continuous access to the VLE.	2.34	12	2.29	21	2.32	16
14		Running a 24X7 help desk to provide support.	1.92	39	1.83	43	1.89	42
15		Running units for educational multimedia production.	1.90	41	1.90	41	1.90	41
16		Offering facilities to participate in e-learning (e.g. Laptops, tablet .etc.).	3.13	1	3.48	1	3.26	1
17	Pedagogical Support	Facilitating cooperation with instructional designers.	2.01	30	2.13	32	2.05	32
18		Providing authoring tools to design e-learning courses.	2.47	9	2.70	9	2.55	9
19		Providing prepared pedagogical templates for e-learning course.	2.13	22	2.33	18	2.20	22
20		Running pedagogical consultations units.	1.88	42	2.00	38	1.92	39
21		Producing guides to increase courses' pedagogical quality.	2.05	28	2.23	28	2.12	28
22		Establishing online communities to share e-learning experiences.	2.06	27	2.29	22	2.14	24
23	Technical Training	Organising TP to enhance using ICT in teaching.	3.05	2	3.34	3	3.15	3
24		Organising TP to increase course management skills in the VLE.	2.82	5	3.18	4	2.95	5
25		Organising TP to increase course content management skills in the VLE.	2.54	8	2.80	6	2.63	7
26		Organising TP to increase my skills in using communication tools in the VLE.	2.34	13	2.52	13	2.40	12
27		Organising TP to increase students' progress tracking skills in the VLE.	2.11	23	2.13	33	2.12	27
28		Organising TP to increase assessments skills in the VLE.	2.21	19	2.38	17	2.27	18
29	Pedagogical Training	Organising TP to improve instructional design skills.	2.07	26	2.26	24	2.13	25
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	1.97	35	2.12	34	2.02	34
31		Organising TP to enhance the interaction through e-learning.	2.03	29	2.26	25	2.11	29
32		Organising TP to increase students' engagement through e-learning.	1.99	32	2.24	27	2.08	30
33		Organising TP to improve creating learner-centred learning strategies.	1.97	36	2.09	36	2.01	36

No	Sec.	Item	Male (M)	Male (R)	Female (M)	Female (R)	All. M	All. R
34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	1.96	38	2.09	37	2.00	37
35	TP Flexibility	Designing TP based on accurate need assessments.	1.81	43	1.90	42	1.84	43
36		TP diversity in terms of means (e.g. face-to-face and online).	1.98	33	2.19	31	2.05	33
37		TP diversity in terms of forms (e.g. one-to-one and team-based).	1.97	37	2.21	29	2.06	31
38		Organising TP in fixable dates.	2.10	25	2.29	23	2.16	23
39		TP diversity in terms of durations (short term-long term).	2.16	20	2.33	19	2.22	21
40	Institutional Incentives	Developing monetary compensation schemes.	2.15	21	2.49	15	2.27	17
41		Adjusting traditional workload credits.	1.71	44	1.82	44	1.75	44
42		Appreciating academic staff participation in e-learning.	2.45	10	2.73	8	2.55	10
43		Taking into account academic staff efforts in the promotion processes.	2.31	14	2.52	14	2.38	13
44		Arranging funded travel to attend e-learning events.	3.03	3	3.41	2	3.16	2
			2.23		2.39		2.29	

Table 4.23. Male and Female Academic Staff Assessment of the Actual Institutional Support Sections

Gender	N	Mean and Rank									Std. Deviation
		SIP	TS	PS	TT	PT	TF	II	M	R	
Male	336	2.20	2.46	2.10	2.51	2.00	2.00	2.33	2.23	2	0.82
		4	2	5	1	7	6	3			
Female	182	2.30	2.52	2.28	2.73	2.18	2.18	2.59	2.39	1	0.83
		4	3	5	1	6	7	2			
ALL	518	2.24	2.48	2.16	2.59	2.06	2.07	2.42	2.29		0.83
		4	2	5	1	7	6	3			

Figure 4.17. Male and Female Academic Staff Assessment of the Actual Institutional Support



From Table 4.23 and Figure 4.17, it can be seen that both male and female academic staff indicated that the required institutional support is *rarely* provided by their universities.

In general, female academic staff rated the availability of the actual institutional support sections (M= 2.39 SD=0.83) higher than male academic staff (M= 2.23 SD=0.82). Both male and female academic staff rated the availability of institutional support sections as *rarely* provided. The only exceptions can be

found in female academic staff's responses where they reported that technical training (M=2.73) is *occasionally* provided by their universities.

In terms of academic staff's ranking of institutional support sections, male and female staff ranked three sections similarly: technical training (first), supportive institutional practices (fourth) and pedagogical support (fifth).

In terms of institutional support items, it can be noted from the means presented in Table 4.22 that female academic staff rated actual presence of 40 institutional support items higher than male academic staff. Meanwhile, male academic staff rated actual presence of four institutional support items (8, 13, 14 and 15) higher than female academic staff.

T-test was used to determine whether the differences between male and female academic staff's rating of the actual support are statistically significant. Results of the t-test indicated statistically *significant* difference between male (M=2.23) and female (M=2.39) academic staff in their rating for the actual institutional support (t value = 2.102, P<0.05). Furthermore, the t-test result indicated that there are statistically *significant* differences between male and female academic staff in terms of their rating of actual presence for five institutional sections (pedagogical support, technical training, pedagogical training, training flexibility and institutional incentives. Meanwhile, the results indicated that there are no statistically *significant* differences in two sections (supportive institutional practices and technical support)(Table 4.24).

Table 4.24. T-test Results (Differences Between Male and Female Academic Staff- Actual)

	Section	Gender	N	Mean	SD	df	t	Sig (2-tailed)
1	Supportive Institutional Practices	**Male**	336	2.20	0.87	516	1.273	0.204
		Female	182	2.30	0.83			
2	Technical support	**Male**	336	2.46	0.93	516	0.675	0.5
		Female	182	2.52	0.89			
3	Pedagogical support	**Male**	336	2.10	0.86	516	2.295	0.022*
		Female	182	2.28	0.81			
4	Technical Training	**Male**	336	2.51	0.97	516	2.536	0.012*
		Female	182	2.73	0.89			
5	Pedagogical Training	**Male**	336	2.00	0.93	516	2.071	0.039*
		Female	182	2.18	0.97			
6	Training Flexibility	**Male**	336	2.00	0.92	516	2.084	0.038*
		Female	182	2.18	0.96			
7	Institutional Incentives	**Male**	336	2.33	0.75	516	3.72	0.00*
		Female	182	2.59	0.81			
	All Sections	**Male**	336	2.23	0.82	516	2.102	0.036*
		Female	182	2.39	0.83			

Question 2.4: Are there statistically significant differences in academic staff's perceptions about actual presence of institutional support according to their main purpose of using the VLE?

The following tables show the means of forty-four items (Table 4.24) and seven sections (Table 4.26) according to responses of academic staff in five universities in Saudi Arabia. The tables classify academic staff into four categories according to their main purposes of using VLE. These categories are administrative purposes only (Adm.), teaching purposes only (Tech.), administrative and teaching purposes (A&T), do not use VLEs (DNU) and other purposes.

Table 4.25. Academic Staff 's (According to Main Purpose) Assessment of the Actual Institutional Support Items

No	Sec.	Item	Adm (M)	Adm (R)	Tech (M)	Tech (R)	A&T (M)	A&T (R)	DNU (M)	DNU (R)	All. M	All. R
1	Supportive Institutional Practices	Clarity of e-learning strategies.	2.46	11	2.50	14	2.90	11	1.93	11	2.43	11
2		Stability of e-learning strategies.	2.30	19	2.29	18	2.62	23	1.80	17	2.23	20
3		Clarifying e-learning importance in the university strategic vision.	2.70	7	2.77	10	3.14	6	2.18	7	2.67	6
4		Representing of academic staff in e-learning planning.	2.30	20	2.50	15	2.64	20	1.79	18	2.26	19
5		Encouraging institutional discussion during e-learning initiatives phases.	2.14	32	1.90	40	2.45	33	1.55	32	2.02	35
6		The provided support is keeping pace with e-learning programmes' growth.	1.98	42	1.98	38	2.35	39	1.45	40	1.92	40
7		Enlightening AS about e-learning educational opportunities.	2.32	17	2.04	36	2.52	30	1.65	26	2.13	26
8		Identifying the barriers of involvement in e-learning.	2.14	33	1.75	42	2.32	40	1.61	29	1.98	38
9		E-learning initiatives are driven by researches' findings.	2.53	10	2.27	19	2.80	15	1.89	12	2.37	14
10		Departments' role in encouraging AS to participate in e-learning.	2.41	14	2.44	16	2.93	10	1.74	20	2.36	15
11	Technical Support	Providing reliable technical infrastructure.	3.02	5	3.23	4	3.51	3	2.38	5	2.98	4
12		Offering user-friendly Virtual Learning Environments (VLE).	2.65	8	2.79	8	3.05	8	1.95	10	2.56	8
13		Ensuring continuous access to the VLE.	2.36	16	2.40	17	2.75	16	1.87	13	2.32	16
14		Running a 24X7 help desk to provide support.	2.07	39	1.69	44	2.21	43	1.51	36	1.89	42
15		Running units for educational multimedia production.	1.99	41	2.00	37	2.30	41	1.42	42	1.90	41
16		Offering facilities to participate in e-learning (e.g. Laptops, tablet etc.).	3.31	1	3.71	1	3.57	1	2.80	2	3.26	1
17	Pedagogical Support	Facilitating cooperation with instructional designers.	2.14	34	2.19	28	2.40	36	1.62	28	2.05	32
18		Providing authoring tools to design e-learning courses.	2.64	9	2.79	9	2.97	9	2.04	8	2.55	9
19		Providing prepared pedagogical templates for e-learning course.	2.26	24	2.25	22	2.61	24	1.74	21	2.20	22
20		Running pedagogical consultations units.	2.05	40	1.88	41	2.36	38	1.43	41	1.92	39
21		Producing guides to increase courses' pedagogical quality.	2.14	35	2.13	31	2.56	26	1.67	25	2.12	28
22		Establishing online communities to share e-learning experiences.	2.16	30	2.13	32	2.64	21	1.64	27	2.14	24
23	Technical Training	Organising TP to enhance using ICT in teaching.	3.25	2	3.48	3	3.54	2	2.61	3	3.15	3
24		Organising TP to increase course management skills in the VLE.	3.11	3	3.08	5	3.38	5	2.40	4	2.95	5
25		Organising TP to increase course content management skills in the VLE.	2.72	6	2.81	7	3.14	7	2.03	9	2.63	7
26		Organising TP to increase my skills in using communication tools in the VLE.	2.46	12	2.60	12	2.90	12	1.82	15	2.40	12
27		Organising TP to increase students' progress tracking skills in the VLE.	2.20	29	2.21	25	2.64	22	1.54	33	2.12	27
28		Organising TP to increase assessments skills in the VLE.	2.32	18	2.27	20	2.75	17	1.77	19	2.27	18
29	c a l	Organising TP to improve instructional design skills.	2.28	23	2.25	23	2.45	34	1.70	23	2.13	25

No	Sec.	Item	Adm (M)	Adm (R)	Tech (M)	Tech (R)	A&T (M)	A&T (R)	DNU (M)	DNU (R)	All. M	All. R
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	2.15	31	2.19	29	2.47	32	1.46	39	2.02	34
31		Organising TP to enhance the interaction through e-learning.	2.21	27	2.23	24	2.56	27	1.59	30	2.11	29
32		Organising TP to increase students' engagement through e-learning.	2.22	26	2.19	30	2.48	31	1.57	31	2.08	30
33		Organising TP to improve creating learner-centred learning strategies.	2.25	25	2.08	34	2.38	37	1.48	38	2.01	36
34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	2.10	38	2.10	33	2.42	35	1.52	35	2.00	37
35	TP Flexibility	Designing TP based on accurate need assessments.	1.84	43	1.96	39	2.29	42	1.38	43	1.84	43
36		TP diversity in terms of means (e.g. face-to-face and online).	2.11	37	2.21	26	2.55	28	1.50	37	2.05	33
37		TP diversity in terms of forms (e.g. one-to-one and team-based).	2.12	36	2.08	35	2.55	29	1.53	34	2.06	31
38		Organising TP in fixable dates.	2.29	21	2.21	27	2.57	25	1.68	24	2.16	23
39		TP diversity in terms of durations (short term-long term).	2.29	22	2.27	21	2.65	19	1.74	22	2.22	21
40	Institutional Incentives	Developing monetary compensation schemes.	2.21	28	2.52	13	2.74	18	1.81	16	2.27	17
41		Adjusting traditional workload credits.	1.79	44	1.71	43	2.12	44	1.38	44	1.75	44
42		Appreciating academic staff participation in e-learning.	2.45	13	2.94	6	2.83	14	2.21	6	2.55	10
43		Taking into account academic staff efforts in the promotion processes.	2.40	15	2.63	11	2.84	13	1.86	14	2.38	13
44		Arranging funded travel to attend e-learning events.	3.09	4	3.52	2	3.47	4	2.84	1	3.16	2
ALL			2.36		2.39		2.71		1.80		2.29	

Table 4.26. Academic Staff 's (According to Main Purpose) Assessment of the Actual Institutional Support Sections

Main Purpose	N	Mean and Rank									Std. Deviation
		SIP	TS	PS	TT	PT	TF	II	M	R	
Administrative purposes	121	2.33	2.57	2.23	2.68	2.20	2.13	2.39	2.36	3	0.73
		4	2	5	1	6	7	3			
Teaching purposes	48	2.24	2.64	2.23	2.74	2.17	2.15	2.66	2.39	2	0.90
		4	3	5	1	6	7	2			
Both administrative and teaching purposes.	174	2.67	2.90	2.59	3.06	2.46	2.52	2.80	2.71	1	0.80
		4	2	5	1	7	6	3			
Do not use the VLE	168	1.76	1.99	1.69	2.03	1.55	1.57	2.02	1.80	4	0.60
		4	3	5	1	7	6	2			
Other	7	1.29	1.55	1.36	1.57	1.05	1.14	1.66	1.36	5	0.28
		5	3	4	2	7	6	1			
ALL	518	2.24	2.48	2.16	2.59	2.06	2.07	2.42	2.29		0.83
		4	2	5	1	7	6	3			

Figure 4.18. Academic Staff 's (According to Main Purpose) Assessment of the Actual Institutional Support

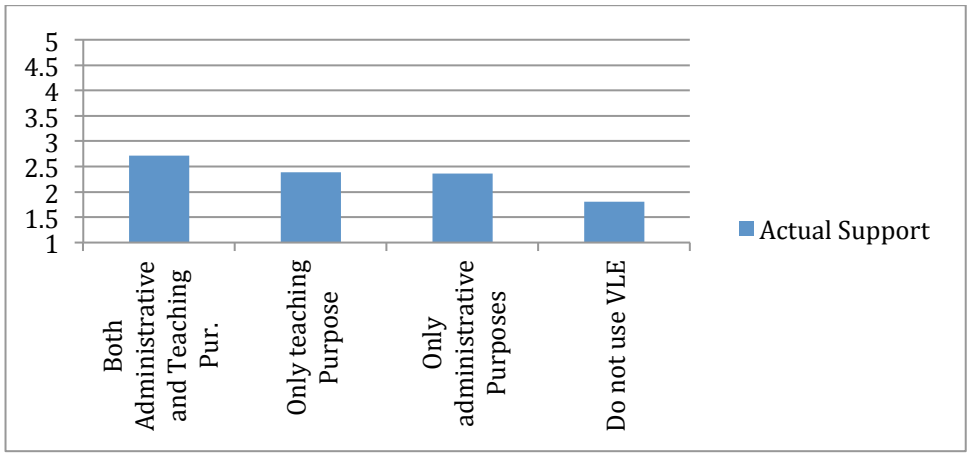


Table 4.26 and Figure 4.18, it can be seen that only the academic staff who use VLEs for both administrative and teaching purposes indicated that their universities *occasionally* provide institutional support (M=2.71 SD=0.80). On the other hand, academic staff who use VLEs for teaching purposes only (M=2.39 SD=0.90), academic staff who use VLEs for administrative purposes only (M=2.36 SD=0.73) and academic staff who do not use VLEs (M=1.80 SD=0.60) indicated that the required institutional support is *rarely* provided by their universities.

In general, academic staff in the four categories rated the actual institutional support sections in a convergent manner with the majority of sections rated by academic staff as *rarely* provided. The exceptions can be found in the responses of academic staff who use VLEs for both administrative and teaching purposes who reported that technical training (M=3.06), technical support (M=2.90), institutional incentives (M=2.80) and supportive institutional practices (M= 2.67) are *occasionally* provided. In addition, academic staff who use VLEs only for teaching purposes reported that technical training (M= 2.74), institutional incentives (M= 2.66) and technical support (M= 2.67) are *occasionally* provided. Moreover, academic staff who use VLEs only for administrative purposes reported that technical training (M=2.68) is *occasionally* provided.

Likewise, this agreement in the academic staff's rating of institutional support sections appears in the sections' ranking. For example, technical training ranked highest in all four categories. Technical support and institutional incentives

ranked second and third in these categories. Likewise, training flexibility ranked sixth in two categories (both purposes and do not use) and seventh in two categories (Administrative only and Teaching only).

In terms of institutional support items, it can be noted from the means presented in The following tables show the means of forty-four items (Table 4.24) and seven sections (Table 4.26) according to responses of academic staff in five universities in Saudi Arabia. The tables classify academic staff into four categories according to their main purposes of using VLE. These categories are administrative purposes only (Adm.), teaching purposes only (Tech.), administrative and teaching purposes (A&T), do not use VLEs (DNU) and other purposes.

Table 4.25 that academic staff who stated that they use VLEs for both administrative and teaching purposes rated actual presence of 41 institutional support items higher than the other categories. Meanwhile, academic staff who stated that they use VLEs only for teaching purposes rated actual presence of three institutional support items (items 16, 42 and 44) higher than the other categories. On the other hand, academic staff who stated that they do not use VLEs rated actual presence of all 44 institutional support items lower than the other categories.

To find out if these differences are statistically significant, a one-way ANOVA was used; the result indicates that there were statistically *significant differences* between the four different *purposes* for use in actual institutional support ($F=37.091$, $p<0.05$). Furthermore, there were statistically *significant differences* between all four different *purposes* for use in all seven sections of actual institutional support (Table 4.27).

Table 4.27. ONE-WAY ANOVA's Results (Differences Between Categories of Main Purpose - Actual)

Section		Sum of Squares	df	Mean Square	F	Sig.
Supportive Institutional Practices	Between Groups	78.032	4	19.508	33.500	.000
	Within Groups	298.738	513	.582		
	Total	376.769	517			
Technical Support	Between Groups	79.482	4	19.870	28.984	.000
	Within Groups	351.695	513	.686		
	Total	431.177	517			
Pedagogical Support	Between Groups	74.739	4	18.685	32.180	.000
	Within Groups	297.867	513	.581		
	Total	372.606	517			
Technical Training	Between Groups	101.064	4	25.266	35.676	.000
	Within Groups	363.308	513	.708		

	Total	464.372	517			
Pedagogical Training	Between Groups	81.048	4	20.262	27.232	.000
	Within Groups	381.692	513	.744		
	Total	462.740	517			
Training Flexibility	Between Groups	85.201	4	21.300	29.566	.000
	Within Groups	369.581	513	.720		
	Total	454.782	517			
Institutional Incentives	Between Groups	58.840	4	14.710	29.261	.000
	Within Groups	257.891	513	.503		
	Total	316.731	517			
All Sections	Between Groups	78.982	4	19.745	37.091	.000
	Within Groups	273.092	513	.532		
	Total	352.074	517			

Scheffe's tests were used to determine the source of difference; Table 4.28 presents the results which indicate that there were statistically significant differences in actual institutional support between academic staff who use VLEs for administrative purposes only (M= 2.36) and those who use VLEs for both teaching and administrative purposes (M= 2.71), between academic staff who use VLEs for administrative purposes only (M= 2.36) and those who do not use VLEs (M= 1.80), between academic staff who use VLEs for teaching purposes only (M= 2.39) and those who do not use VLEs (M= 1.80), and finally between academic staff who use VLEs for both administrative and teaching purposes (M= 2.71) and those who do not use VLEs (M= 1.80).

Table 4.28. Scheffe's Results (Differences Between Categories of Main Purpose - Actual)

Section One

Mean	Admin. 2.33	Teach. 2.24	Both. 2.67	DNU 1.76
Admin. 2.33				
Teach. 2.24	0.98			
Both. 2.67	0.01*	0.02*		
DNU 1.76	0.00*	0.01*	0.00*	

Section two

Mean	Admin. 2.57	Teach. 2.64	Both. 2.90	DNU 1.99
Admin. 2.57				
Teach. 2.64	1.00			
Both. 2.90	0.03*	0.43		
DNU 1.99	0.00*	0.00*	0.00*	

Section three

Mean	Admin. 2.23	Teach. 2.23	Both. 2.59	DNU 1.69
Admin 1.94				
Admin. 2.23	1.00			
Both. 2.59	0.00*	0.08		
DNU 1.69	0.00*	0.00*	0.00*	

Section four

Mean	Admin. 2.68	Teach. 2.74	Both. 3.06	DNU 2.03
Admin. 2.68				
Teach. 2.74	1.00			
Both. 3.06	0.01*	0.26		
DNU 2.03	0.00*	0.00*	0.00*	

Section five

Mean	Admin. 2.20	Teach. 2.17	Both. 2.46	DNU 1.55
Admin. 2.20				
Teach. 2.17	1.00			
Both. 2.46	0.18	0.40		
DNU 1.55	0.00*	0.00*	0.00*	

Section six

Mean	Admin. 2.13	Teach. 2.15	Both. 2.52	DNU 1.57
Admin. 2.13				
Teach. 2.15	1.00			
Both. 2.52	0.01*	0.12		
DNU 1.57	0.00*	0.00*	0.00*	

Section seven

Mean	Admin. 2.39	Teach. 2.66	Both. 2.80	DNU 2.02
Admin. 2.39				
Teach. 2.66	0.27			
Both. 2.80	0.00*	0.84		
DNU 2.02	0.00*	0.00*	0.00*	

All Section

Mean	Admin. 2.36	Teach. 2.39	Both. 2.71	DNU 1.80
Admin. 2.36				
Teach. 2.39	1.00			
Both. 2.71	0.00*	0.12		
DNU 1.80	0.00*	0.00*	0.00*	

Question 2.5: Are there significant statistically differences in academic staff's perceptions about actual presence of institutional support according to their attitudes toward e-learning?

The following tables show means of forty-four items (Table 4.29) and seven sections (Table 4.30) according to responses of academic staff from five universities in Saudi Arabia. The tables classify academic staff into three categories according to their attitudes toward e-learning: those who would participate in e-learning even without sufficient institutional support (USE), those who would participate only if sufficient institutional support were provided (U.IF) and those who would not participate even if sufficient institutional support were provided (DNU).

Table 4.29. Academic Staff 's (According to Attitude) Assessment of the Actual Institutional Support Items

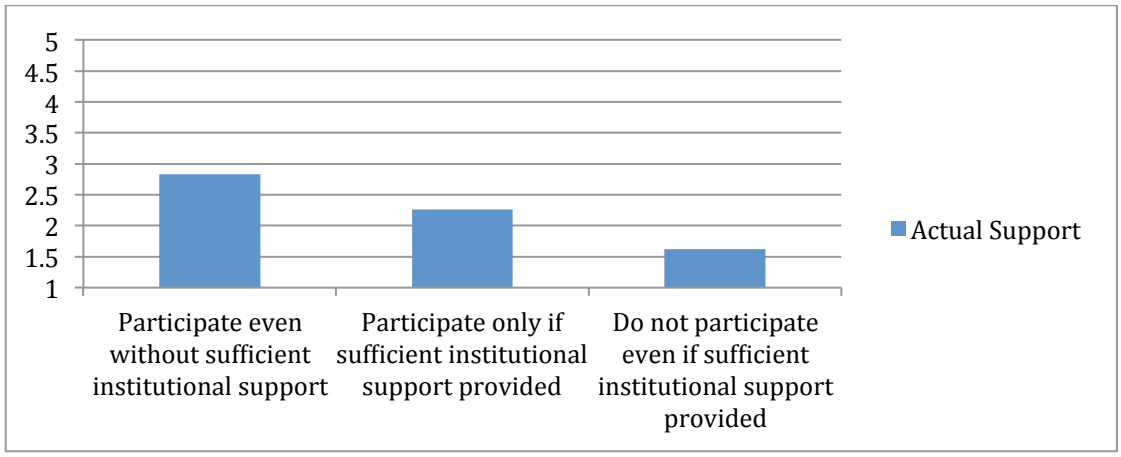
	Sec.	Item	USE (M)	USE (R)	U.IF (M)	U.IF (R)	DNU (M)	DNU (R)	All. M	All. R
1	Supportive Institutional Practices	Clarity of e-learning strategies.	3.09	8	2.36	13	1.73	11	2.43	11
2		Stability of e-learning strategies.	2.69	25	2.23	19	1.61	18	2.23	20
3		Clarifying e-learning importance in the university strategic vision.	3.23	7	2.65	6	1.97	7	2.67	6
4		Representing of academic staff in e-learning planning.	2.73	21	2.28	17	1.51	25	2.26	19
5		Encouraging institutional discussion during e-learning initiatives phases.	2.60	34	1.99	34	1.31	36	2.02	35
6		The provided support is keeping pace with e-learning programmes growth.	2.46	41	1.88	39	1.29	39	1.92	40
7		Enlightening AS about e-learning educational opportunities.	2.67	29	2.10	25	1.48	28	2.13	26
8		Identifying the barriers of involvement in e-learning.	2.49	38	1.94	37	1.40	32	1.98	38
9		E-learning initiatives are driven by researches' findings.	2.94	13	2.36	14	1.63	14	2.37	14
10		Departments' role in encouraging AS to participate in e-learning.	3.04	10	2.30	15	1.61	19	2.36	15
11	Technical Support	Providing reliable technical infrastructure.	3.63	2	3.01	4	1.99	6	2.98	4
12		Offering user-friendly Virtual Learning Environments (VLE).	3.09	9	2.62	7	1.62	15	2.56	8
13		Ensuring continuous access to the VLE.	2.94	14	2.30	16	1.57	23	2.32	16
14		Running a 24X7 help desk to provide support.	2.44	42	1.84	42	1.29	40	1.89	42
15		Running units for educational multimedia production.	2.48	39	1.85	41	1.28	42	1.90	41
16		Offering facilities to participate in e-learning (e.g. Laptops, tablet .etc).	3.67	1	3.34	1	2.42	3	3.26	1
17	Pedagogical Support	Facilitating cooperation with instructional designers.	2.48	40	2.05	29	1.48	29	2.05	32
18		Providing authoring tools to design e-learning courses.	3.02	11	2.58	9	1.83	9	2.55	9
19		Providing prepared pedagogical templates for e-learning course.	2.73	22	2.15	22	1.62	16	2.20	22
20		Running pedagogical consultations units.	2.52	37	1.88	40	1.23	43	1.92	39
21		Producing guides to increase courses' pedagogical quality.	2.57	36	2.11	24	1.52	24	2.12	28
22		Establishing online communities to share e-learning experiences.	2.66	31	2.12	23	1.50	26	2.14	24
23	Technical Training	Organising TP to enhance using ICT in teaching.	3.63	3	3.15	3	2.49	2	3.15	3
24		Organising TP to increase course management skills in the VLE.	3.56	4	2.91	5	2.21	4	2.95	5
25		Organising TP to increase course content management skills in the VLE.	3.25	6	2.60	8	1.87	8	2.63	7
26		Organising TP to increase my skills in using communication tools in the VLE.	3.01	12	2.37	12	1.70	12	2.40	12
27		Organising TP to increase students' progress tracking skills in the VLE.	2.84	17	2.03	30	1.41	31	2.12	27
28		Organising TP to increase assessments skills in the VLE.	2.88	15	2.21	20	1.61	20	2.27	18
29	gica l Trai	Organising TP to improve instructional design skills.	2.69	26	2.07	27	1.59	21	2.13	25
30		Organising TP to assist AS reconceptualising my role in	2.69	27	1.94	38	1.36	33	2.02	34

	Sec.	Item	USE (M)	USE (R)	U.IF (M)	U.IF (R)	DNU (M)	DNU (R)	All. M	All. R
		e-learning environments.								
31		Organising TP to enhance the interaction through e-learning.	2.69	28	2.06	28	1.50	27	2.11	29
32		Organising TP to increase students' engagement through e-learning.	2.66	32	2.03	31	1.43	30	2.08	30
33		Organising TP to improve creating learner-centred learning strategies.	2.58	35	1.99	35	1.29	41	2.01	36
34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	2.62	33	1.96	36	1.31	37	2.00	37
35	TP Flexibility	Designing TP based on accurate need assessments.	2.35	43	1.83	43	1.19	44	1.84	43
36		TP diversity in terms of means (e.g. face-to-face and online).	2.67	30	2.02	32	1.31	38	2.05	33
37		TP diversity in terms of forms (e.g. one-to-one and team-based).	2.70	24	2.01	33	1.33	34	2.06	31
38		Organising TP in fixable dates.	2.77	19	2.09	26	1.59	22	2.16	23
39		TP diversity in terms of durations (short term-long term).	2.77	20	2.17	21	1.62	17	2.22	21
40	Institutional Incentives	Developing monetary compensation schemes.	2.73	23	2.24	18	1.74	10	2.27	17
41		Adjusting traditional workload credits.	2.14	44	1.72	44	1.32	35	1.75	44
42		Appreciating academic staff participation in e-learning.	2.81	18	2.56	10	2.14	5	2.55	10
43		Taking into account academic staff efforts in the promotion processes.	2.85	16	2.39	11	1.70	13	2.38	13
44		Arranging funded travel to attend e-learning events.	3.43	5	3.23	2	2.57	1	3.16	2
	ALL		2.83		2.26		1.62		2.29	

Table 4.30. Academic Staff 's (According to Attitude) Assessment of the Actual Institutional Support Sections

Attitude	N	Mean and Rank									Std. Deviation
		SIP	TS	PS	TT	PT	TF	II	M	R	
Participate EVEN with lack of sufficient institutional support	124	2.794	3.04	2.66	3.19	2.65	2.65	2.790	2.83	1	0.78
		3	2	5	1	6	7	4			
Participate only if sufficient institutional support is provided.	304	2.21	2.49	2.15	2.55	2.01	2.02	2.43	2.26	2	0.77
		4	2	5	1	7	6	3			
Do not participate EVEN IF sufficient institutional support is provided.	90	1.55	1.69	1.53	1.88	1.41	1.41	1.90	1.62	3	0.49
		4	3	5	2	6	7	1			
ALL	518	2.24	2.48	2.16	2.59	2.06	2.07	2.42	2.29		0.83
		4	2	5	1	7	6	3			

Figure 4.19. Academic Staff 's (According to Attitude) Assessment of the Actual Institutional Support



From Table 4.30 and Figure 4.19, it can be seen that only academic staff who would participate even without sufficient institutional support indicated that

their universities *occasionally* provide institutional support (M=2.83 SD=0.78). On the other hand, academic staff who would participate only if sufficient institutional support were provided indicated that their universities *rarely* provide institutional support (M=2.26 SD=0.77). Interestingly, academic staff who would not participate even if sufficient institutional support were provided (M=1.62 SD=0.49) indicated that the required institutional support is *never* provided by their universities.

It is clear that academic staff who would participate even with insufficient institutional support rated institutional support sections relatively higher than the other two categories. They rated all seven institutional support sections as *occasionally* provided as follows: technical training (M=3.19), technical support (M=3.04), supportive institutional practices (M=2.794), institutional incentives (M=2.79), pedagogical support (M=2.66), pedagogical training (M=2.65) and training flexibility (M=2.65). On the other hand, academic staff who would participate only if required support were provided rated all seven institutional support sections as *rarely* provided as follows: technical training (M=2.55), technical support (M=2.49), institutional incentives (M=2.43), supportive institutional practices (M=2.21), pedagogical support (M=2.15), training flexibility (M=2.02) and pedagogical training (M=2.01). Notably, academic staff who expressed less desire to participate in e-learning rated actual presence of institutional support sections lower than those who expressed higher desire to participate in e-learning. In other words, academic staff who would not participate even if sufficient institutional support were provided rated only institutional incentives (M= 1.90) and technical training (M=1.88) as *rarely* provided. Meanwhile, they rated technical support (M=1.69), supportive institutional practices (M= 1.55), pedagogical support (M=1.53) and pedagogical training (M=1.41) as *never* provided by their universities.

Despite disagreement in the academic staff's rating of institutional support sections, these sections were ranked similarly. For example, technical training was ranked first by academic staff who would participate in e-learning (either with or without sufficient support) and it was ranked second by academic staff who would not participate in e-learning. On the other hand, pedagogical training

and training flexibility were ranked in sixth and seventh place by the other three categories.

In terms of institutional support items, it can be noted from the means presented in Table 4.29 that academic staff who stated that they would participate in e-learning even with insufficient institutional support rated actual presence of all 44 institutional support items higher than the other two categories. On the other hand, academic staff who stated that they would not participate in e-learning even if sufficient institutional support were provided rated actual presence of 44 institutional support items lower than the other two categories.

To find out if these differences are statistically significant, a one-way ANOVA was used; the result indicates that there were statistically *significant differences* between the three different attitude categories in actual institutional support ($F=71.975$, $p<0.05$). Furthermore, there were statistically *significant differences* between all three different *attitudes* in all seven sections of actual institutional support (Table 4.31).

Table 4.31. ONE-WAY ANOVA's Results (Differences Between Categories of Attitude - Actual)

Section		Sum of Squares	df	Mean Square	F	Sig.
Supportive Institutional Practices	Between Groups	80.678	2	40.339	70.162	.000*
	Within Groups	296.092	515	.575		
	Total	376.769	517			
Technical Support	Between Groups	94.499	2	47.250	72.275	.000*
	Within Groups	336.678	515	.654		
	Total	431.177	517			
Pedagogical Support	Between Groups	66.926	2	33.463	56.378	.000*
	Within Groups	305.679	515	.594		
	Total	372.606	517			
Technical Training	Between Groups	90.913	2	45.457	62.685	.000*
	Within Groups	373.458	515	.725		
	Total	464.372	517			
Pedagogical Training	Between Groups	82.347	2	41.173	55.743	.000*
	Within Groups	380.393	515	.739		
	Total	462.740	517			
Training Flexibility	Between Groups	82.434	2	41.217	57.008	.000*
	Within Groups	372.348	515	.723		
	Total	454.782	517			
Institutional Incentives	Between Groups	41.779	2	20.890	39.127	.000*
	Within Groups	274.952	515	.534		
	Total	316.731	517			
All Sections	Between Groups	76.912	2	38.456	71.975	.000*
	Within Groups	275.163	515	.534		
	Total	352.074	517			

Scheffe's tests were used to determine the source of difference; Table 4.32 presents the results which indicate that there were statistically significant differences in desired institutional support between academic staff who participate in e-learning even without institutional support (M= 2.83) and those who participate in e-learning only if institutional support is provided (M= 2.26), between academic staff who participate in e-learning even without institutional support (M= 2.83) and those who *do not* participate even if institutional support is provided (M= 1.62) and finally between academic staff who participate in e-learning only if institutional support is provided (M= 2.26) and those who do not participate even if institutional support is provided (M= 1.62). The following table shows the Scheffe's test results for the seven institutional support sections.

Table 4.32. Scheffe's Results (Differences Between Categories of Attitude - Actual)

Section One

Mean	P. Even 2.79	P. IF 2.21	Do not P. 1.55
P. Even 2.79			
P. IF 2.21	0.00*		
Do not P. 1.55	0.00*	0.00*	

Section two

Faculty Mean	P. Even 3.04	P. IF 2.49	Do not P. 1.69
P. Even 3.04			
P. IF 2.49	0.00*		
Do not P. 1.69	0.00*	0.00*	

Section three

Mean	P. Even 2.66	P. IF 2.15	Do not P. 1.53
P. Even 2.66			
P. IF 2.15	0.00*		
Do not P. 1.53	0.00*	0.00*	

Section four

	P. Even 3.19	P. IF 2.55	Do not P. 1.88
P. Even 3.19			
P. IF 2.55	0.00*		
Do not P. 1.88	0.00*	0.00*	

Section five

Mean	P. Even 2.65	P. IF 2.01	Do not P. 1.41
P. Even 2.65			
P. IF 2.01	0.00*		
Do not P. 1.41	0.00*	0.00*	

Section six

Mean	P. Even 2.65	P. IF 2.01	Do not P. 1.41
P. Even 2.65			
P. IF 2.01	0.00*		
Do not P. 1.41	0.00*	0.00*	

Section seven

Mean	P. Even 2.79	P. IF 2.43	Do not P. 1.90
P. Even 2.79			
P. IF 2.43	0.00*		
Do not P. 1.90	0.00*	0.00*	

All Sections

	P. Even 2.83	P. IF 2.26	Do not P. 1.62
P. Even 2.83			
P. IF 2.26	0.00*		
Do not P. 1.62	0.00*	0.00*	

4.3. The desired institutional support

This section aims to present the results of the third question that explore the desired institutional support that should be provided by universities in Saudi Arabia to motivate academic staff to adopt VLEs.

Question 3: **From the perceptions of academic staff in Saudi Arabia, what is the desired institutional support that should be provided by their universities to motivate them to adopt VLEs? (Seven sub-questions)**

As was clarified in Chapters One and Three, this question consists of seven sub-questions aimed at obtaining data about desired supportive institutional practices, technical support, pedagogical support, technical training, pedagogical training, flexibility of training programmes and institutional incentives.

This section presents the academic staff's assessment of the desired support in these seven main areas. The academic staff were asked to rate the importance of 44 institutional support items.

1 (highly undesired) = if he/she believes that the support indicated by the item is highly undesired.

2 (undesired) = if he/she believes that the support indicated by the item is undesired.

3 (neutral) = if he/she feel neutral about the support indicated by the item.

4 (desired) = if he/she believes that the support indicated by the item is desired.

5 (highly desired) = if he/she believes that the support indicated by the item is highly desired.

For analysis and reporting purposes, class interval (Table 4.33) was calculated by using the following formula (Fernandez, 2013):

Class interval = the highest response – the lowest response / Number of responses

= 5 – 1 / 5 = 4/5 = 0.80

Table 4.33. Utilised Scale to Explain the Means (Desired Institutional Support)

Mean	Mean discription
1.00 - <1.80	Highly undesired
1.80 - < 2.60	Undesired
2.60 - < 3.40	Neutral
3.40 - < 4.20	Desired
4.20 - 5	Highly desired

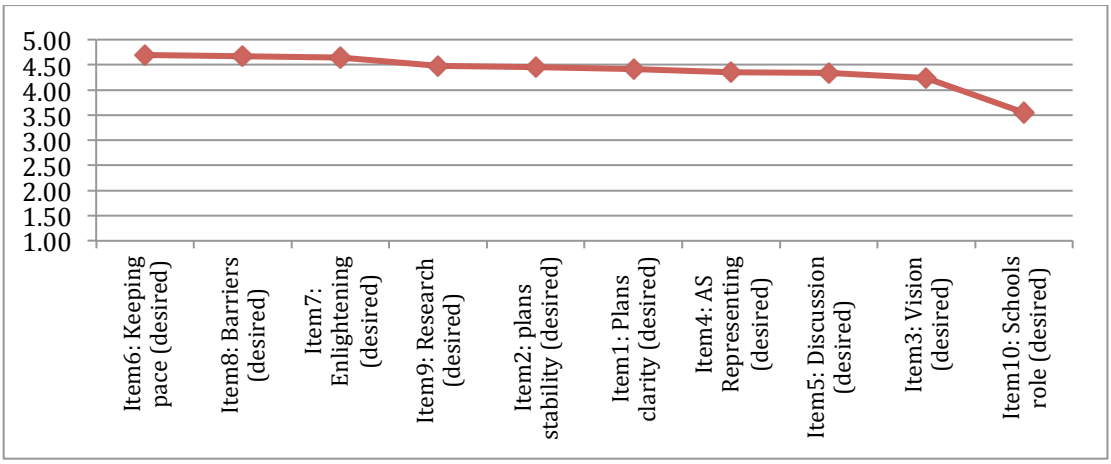
Question 3.1: What are desired supportive institutional practices that should be provided?

Table 4.34 and Figure 4.20 present academic staff's assessment (n= 518) of the extent of importance of/desire for ten supportive institutional practices that motivate them to adopt the VLE.

Table 4.34. Academic Staff's Assessment of Desired Supportive Institutional Practices

ITEM			Degree of Desire of Ins. Supp.					Mean	Std. Dev.	Rank*
			H.Des.	Des.	Neutral	Un.D.	H. UnD.			
1	Clarity of e-learning strategies.	F	295	154	61	8	0	4.42	0.76	6
		%	56.9	29.7	11.8	1.5	0			
2	Stability of e-learning strategies.	F	322	130	51	11	4	4.46	0.82	5
		%	62.2	25.1	9.8	2.1	0.8			
3	Clarifying e-learning importance in the university strategic vision.	F	203	240	68	7	0	4.23	0.72	9
		%	39.2	46.3	13.1	1.4	0			
4	Representing of academic staff in e-learning planning.	F	268	174	68	5	3	4.35	0.79	7
		%	51.7	33.6	13.1	1	0.6			
5	Encouraging institutional discussion during e-learning initiatives phases.	F	251	203	57	5	2	4.34	0.74	8
		%	48.5	39.2	11	1	0.4			
6	The provided support is keeping pace with e-learning programmes growth.	F	392	102	20	4	0	4.70	0.58	1
		%	75.7	19.7	3.9	0.8	0			
7	Enlightening AS about e-learning educational opportunities.	F	362	132	20	3	1	4.64	0.60	3
		%	69.9	25.5	3.9	0.6	0.2			
8	Identifying the barriers of involvement in e-learning.	F	378	111	25	4	0	4.67	0.60	2
		%	73	21.4	4.8	0.8	0			
9	E-learning initiatives are driven by researches' findings.	F	320	129	65	4	0	4.48	0.74	4
		%	61.8	24.9	12.5	0.8	0			
10	Departments' role in encouraging AS to participate in e-learning.	F	77	203	170	64	4	3.55	0.92	10
		%	14.9	39.2	32.8	12.4	0.8			
		F	518	Supportive institutional practices (desired) section's Mean= 4.38 Std. Dev. = 0.52						
		%	100							

Figure 4.20. Academic Staff's Assessment of Desired Supportive Institutional Practices



As can be seen from the means and percentages displayed in Table 4.34 and Figure 4.20, and according to the scale described in Table 4.33, academic staff evaluated the importance of nine items as *highly desired* with means ranging between 4.23 and 4.70 and only one item evaluated as *desired* (M=3.55). The most *desired* support item rated by academic staff was Item 6 "The provided support keeps pace with e-learning programmes growth" (M=4.70 SD=0.85). The importance of this type of support was reported by more than 95% of academic staff. The other items can be arranged in descending order according to their mean as follows: Item 8, "Identifying the barriers of involvement in e-learning" ranked second (M= 4.67 SD=0.60) with 94% stating that this support is *highly desired* (or *desired*). This is followed very closely by Item 7 "Enlightening AS about e-learning educational opportunities" (M=4.64 SD=0.60) which ranked third, and then Items 9, 2, and 1 which ranked fourth, fifth and sixth respectively. More than 86% of academic staff reported that the following items are very desirable (or desirable): "E-learning initiatives are driven by research findings" (M=4.48 SD=0.74), "Stability of e-learning strategies" (M=4.46 SD=0.82) and "Clarity of e-learning strategies" (M=4.42 SD=0.76). Moreover, more than eighty five academic staff rated Item 4 "Representing of academic staff in e-learning planning" (M=4.35 SD=0.79) and Item 5 "Encouraging institutional discussion during e-learning initiatives phases" (M=4.43 SD=0.74) as highly desired (or *desired*) which put them seventh and eighth. Ranked ninth in this section was Item 3, "Clarifying e-learning importance in the university strategic vision" (M=4.23 SD=0.72). Finally at tenth, and the only item rated as *desired,* academic staff reported "department's role in encouraging AS to participate in e-learning" (M=3.55 SD=0.92).

In general, and according to academic staff's perceptions, the supportive institutional practices section was rated as *highly desired* with M=4.38 and SD=0.52.

Question 3.2: What is the desired technical support that should be provided?

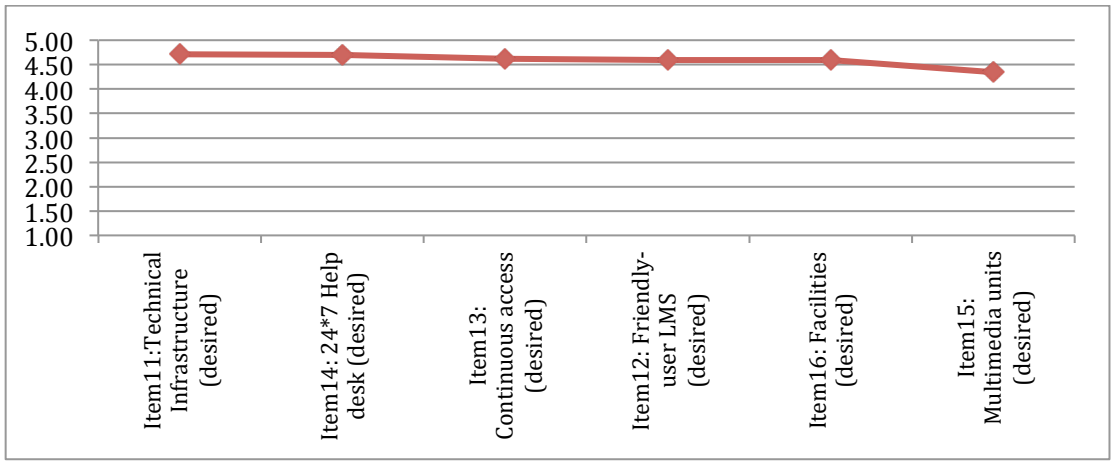
Table 4.35 and Figure 4.21 present academic staff's assessment (n= 518) of the importance of six types of required technical support which include the

procedures and approaches that should be followed by the university to ensure seamless and continuous access that motivate academic staff to adopt the VLE.

Table 4.35. Academic Staff's Assessment of Desired Technical Support

ITEM			Degree of Desire of Ins. Supp.					Mean	Std. Dev.	Rank*
			H.Des.	Des.	Neutral	Un.D.	H. UnD.			
11	Providing reliable technical infrastructure.	F	387	116	14	1	0	4.72	0.52	1
		%	74.7	22.4	2.7	0.2	0			
12	Offering user-friendly Virtual Learning Environments (VLE).	F	331	165	22	0	0	4.60	0.57	4
		%	63.9	31.9	4.2	0	0			
13	Ensuring continuous access to the VLE.	F	336	167	15	0	0	4.62	0.54	3
		%	64.9	32.2	2.9	0	0			
14	Running a 24X7 help desk to provide support.	F	372	139	7	0	0	4.70	0.49	2
		%	71.8	26.8	1.4	0	0			
15	Running units for educational multimedia production.	F	267	172	70	9	0	4.35	0.78	6
		%	51.5	33.2	13.5	1.7	0			
16	Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs, etc.).	F	335	162	16	5	0	4.60	0.60	5
		%	64.7	31.3	3.1	1	0			
		F	518	Technical support (desired) section's Mean= 4.60 Std. Dev. = 0.44						
		%	100							

Figure 4.21. Academic Staff's Assessment of Desired Technical Support



The results in Table 4.35 and Figure 4.21 indicate that academic staff rated all six section items as *highly desired* with means ranging between 4.35 and 4.72.

More than 97% of academic staff agreed that "The provision of reliable technical infrastructure" (Item 16) by their universities is *highly desired* (or *desired*). This type of support ranked first in the technical support section (M=4.72 SD=0.52). Second, they reported that their university should "Run a 24/7 help desk to provide support" (Item 14) (M= 4.70 SD=0.49).

This was closely followed by Item 13, "Ensuring continuous access to the VLE" (M=4.62 SD=0.54), Item 12 "Offering user-friendly Virtual Learning Environments (VLE)" (M=4.60 SD=0.57) and Item 16 "Offering facilities to

participate in e-learning, e.g. laptops, tablets, computers labs, etc." (M=4.60 SD=0.60) which ranked third, fourth and fifth with nearly 96% of academic staff rating the support indicated in these items as *highly desired* (or *desired*). Furthermore, approximately 85% of academic staff rated Item 15, "Running units for educational multimedia production", as *highly desired* (or *desired*) support (M=4.35 SD=0.78) which put this item sixth.

Generally, academic staff rated the *technical support* section as *highly desired* support. This can be seen from the overall mean of the section mean (M= 4.60 SD= 0.44).

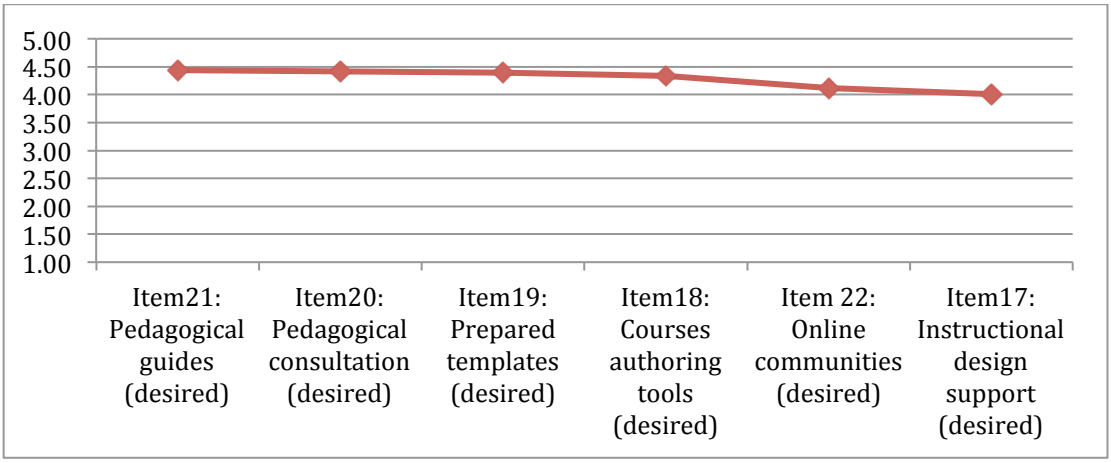
Question 3.3: What is the desired pedagogical support that should be provided?

Table 4.36 and Figure 4.22 present academic staff's assessment (n= 518) of the importance of six types of pedagogical support which includes the procedures and approaches which should be followed by the university to address the pedagogical issues and achieve a high level of pedagogical quality for e-learning courses.

Table 4.36. Academic Staff's Assessment of Desired Pedagogical Support

ITEM			Degree of Desire of Ins. Supp.					Mean	Std. Dev.	Rank*
			H.Des.	Des.	Neutral	Un.D.	H. UnD.			
17	Facilitating cooperation with instructional designers.	F	144	273	63	38	0	4.01	0.83	6
		%	27.8	52.7	12.2	7.3	0			
18	Providing authoring tools to design e-learning courses.	F	242	219	49	8	0	4.34	0.71	4
		%	46.7	42.3	9.5	1.5	0			
19	Providing prepared pedagogical templates for e-learning course.	F	274	183	52	9	0	4.39	0.74	3
		%	52.9	35.3	10	1.7	0			
20	Running pedagogical consultations units.	F	275	185	55	3	0	4.41	0.70	2
		%	53.1	35.7	10.6	0.6	0			
21	Producing guides to increase courses' pedagogical quality.	F	293	167	50	8	0	4.44	0.73	1
		%	56.6	32.2	9.7	1.5	0			
22	Establishing online communities to share e-learning experiences.	F	176	233	104	5	0	4.12	0.75	5
		%	34	45	20.1	1	0			
		F	518	Pedagogical support (desired) section's Mean= 4.29 Std. Dev. = 0.60						
		%	100							

Figure 4.22. Academic Staff's Assessment of Desired Pedagogical Support



The results in Table 4.36 and Figure 4.22 indicate that academic staff rated four items in this section as *highly desired* and two items as *desired* with means ranging between 4.01 and 4.44.

More than 88% of academic staff agreed that "Producing guides to increase courses' pedagogical quality" by their university (Item 21) is *highly desired* (or *desired*). This type of support ranked first in the pedagogical support section (M=4.44 SD=0.73). Furthermore, Items 20, 19 and 18 ranked second, third and fourth respectively, with academic staff rating "Running pedagogical consultations units" (M= 4.41 SD=0.70), "Providing prepared pedagogical templates for e-learning courses" (M= 4.39 SD=0.74) and "Providing authoring tools to design e-learning courses" (M= 4.34 SD=0.71) as *highly desired* support.

The only two items in this section rated by academic staff as *desired* were Item 22, "Establishing online communities to share e-learning experiences" (M= 4.12 SD=0.75), and Item 17, "Facilitating cooperation with instructional designers" (M=4.01 SD=0.83), which ranked fifth and sixth.

Generally, academic staff rated the *pedagogical support* section as *highly desired* support. This can be seen by the overall mean of this section (M= 4.29 SD= 0.60).

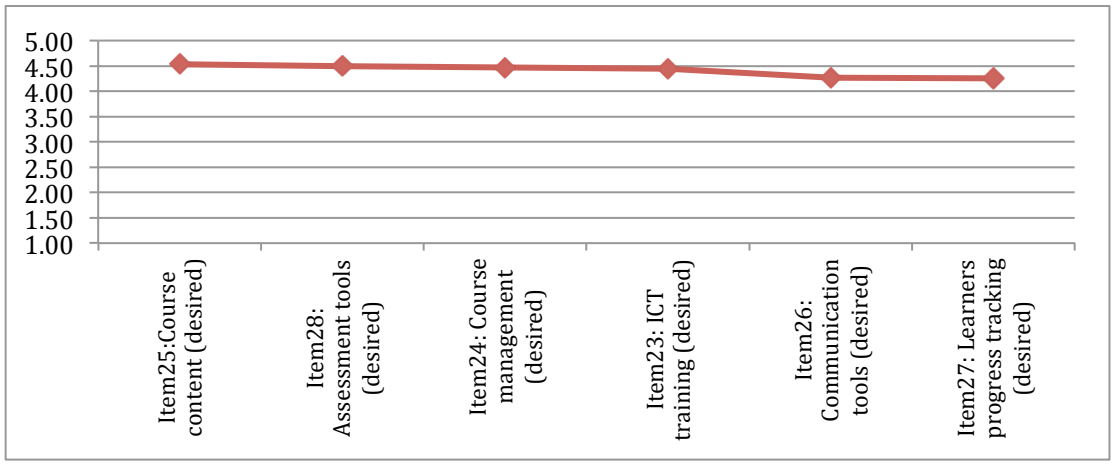
Question 3.4: What is the desired technical training that should be provided?

Table 4.37 and Figure 4.23 present academic staff's assessment (n= 518) of the importance of six items of technical training programs and activities which are organised by the university to increase academic staff's technical skills.

Table 4.37. Academic Staff's Assessment of Desired Technical Training

ITEM			Degree of Desire of Ins. Supp.					Mean	Std. Dev.	Rank*
			H.Des.	Des.	Neutral	Un.D.	H. UnD.			
23	Organising TP to enhance using ICT in teaching.	F	305	150	55	8	0	4.45	0.74	4
		%	58.9	29	10.6	1.5	0			
24	Organising TP to increase course management skills in the VLE.	F	314	140	61	3	0	4.48	0.72	3
		%	60.6	27	11.8	0.6	0			
25	Organising TP to increase course content management skills in the VLE.	F	329	143	41	5	0	4.54	0.68	1
		%	63.5	27.6	7.9	1	0			
26	Organising TP to increase my skills in using communication tools in the VLE.	F	188	286	41	3	0	4.27	0.63	5
		%	36.3	55.2	7.9	0.6	0			
27	Organising TP to increase students' progress tracking skills in the VLE.	F	186	282	46	4	0	4.25	0.64	6
		%	35.9	54.4	8.9	0.8	0			
28	Organising TP to increase assessment skills in the VLE.	F	291	197	29	1	0	4.50	0.61	2
		%	56.2	38	5.6	0.2	0			
		F	518	Technical training (desired) section's Mean= 4.42 Std. Dev. = 0.49						
		%	100							

Figure 4.23. Academic Staff's Assessment of Desired Technical Training



The results in Table 4.37 and Figure 4.23 indicate that academic staff rated all six of the section items as *highly desired,* with means ranging between 4.25 and 4.54. More than 90% of academic staff agreed that "Organising training programs to increase course content management skills in the VLE" by their university (Item 25) is *highly desired* (or *desired*). This type of support ranked first in the technical training section (M=4.54 SD=0.68). Likewise, academic staff rated "Organising training programs to increase assessment skills in the VLE" (Item28) as *highly desired* support (M= 4.70 SD=0.49).

This was followed closely by Item 24, "Organising TPs to increase course management skills in the VLE" (M=4.48 SD=0.72), and Item 23, "Organising TPs

to enhance using ICT in teaching" (M=4.45 SD=0.74), which ranked third and fourth with nearly 87% of academic staff rating the support indicated in these items as *highly desired* (or *desired*).

Finally, ranking fifth and sixth in this section, were Item 26 "Organising TPs to increase skills in using communication tools in the VLE" (M=4.27 SD=0.63) and Item 27 "Organising TPs to increase students' progress tracking skills in the VLE" as *highly desired* (or *desired*) support (M=4.25 SD=0.64).

Generally, academic staff rated the *technical training* section as *highly desired* support. This can be seen in the overall mean for this section (M= 4.42 SD= 0.49).

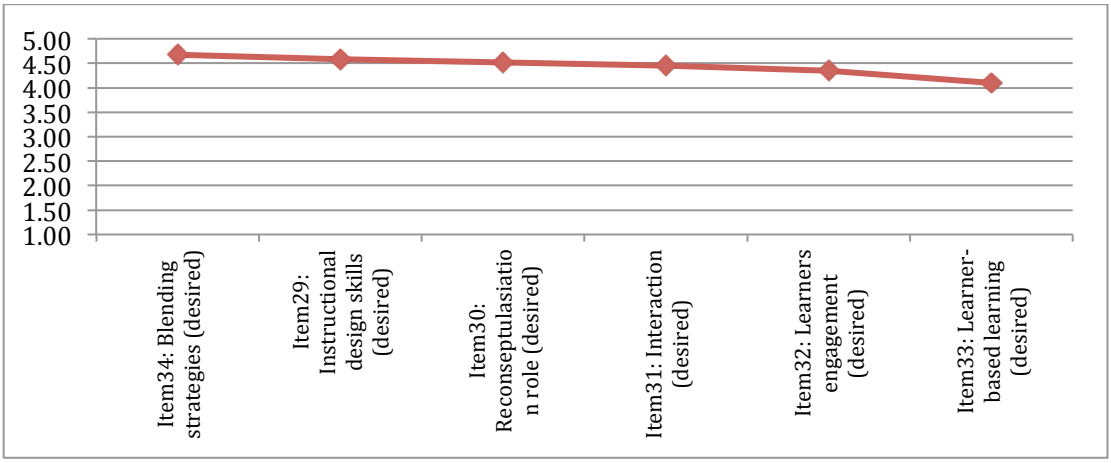
Question 3.5: What are the desired pedagogical training programmes that should be provided?

Table 4.38 and Figure 4.24 present academic staff's assessment (n= 518) of the importance of pedagogical training which includes training programs and activities which are organised by the university to increase academic staff's pedagogical knowledge and proficiency.

Table 4.38. Academic Staff's Assessment of Desired Pedagogical Training

ITEM			Degree of Desire of Ins. Supp.					Mean	Std. Dev.	Rank*
			H.Des.	Des.	Neutral	Un.D.	H. UnD.			
29	Organising TP to improve instructional design skills.	F	343	136	38	1	0	4.58	0.63	2
		%	66.2	26.3	7.3	0.2	0			
30	Organising TP to assist AS reconceptualising my role in e-learning environments.	F	323	145	48	2	0	4.52	0.68	3
		%	62.4	28	9.3	0.4	0			
31	Organising TP to enhance the interaction through e learning.	F	306	143	67	2	0	4.45	0.73	4
		%	59.1	27.6	12.9	0.4	0			
32	Organising TP to increase students' engagement through e learning.	F	236	227	55	0	0	4.35	0.66	5
		%	45.6	43.8	10.6	0	0			
33	Organising TP to improve creating learner-centred learning strategies.	F	178	238	77	25	0	4.10	0.82	6
		%	34.4	45.9	14.9	4.8	0			
34	Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	F	389	93	33	3	0	4.68	0.62	1
		%	75.1	18	6.4	0.6	0			
		F	518	Pedagogical training (desired) section's Mean= 4.45 Std. Dev. = 0.56						
		%	100							

Figure 4.24. Academic Staff's Assessment of Desired Pedagogical Training



The results in Table 4.38 and Figure 4.24 indicate that academic staff rated five out of six pedagogical training items as *highly desired and* only one item as *desired,* with means ranging between 4.10 and 4.68.

More than 90% of academic staff agreed that "Organising TPs to guide to the best practices in blending face-to-face teaching and e-learning" by their university (Item 34) is *highly desired* (or *desired*). This type of support ranked first in the pedagogical training section (M=4.68 SD=0.62). Additionally, Items 29, 30, 31 and 32 ranked second, third, fourth and fifth respectively; all these items were rated by academic staff as *highly desired* support; "Organising TPs to improve instructional design skills" (M= 4.58 SD=0.63), "Organising TPs to assist AS reconceptualising AS role in e-learning environments" (M= 4.52 SD=0.68), "Organising TPs to enhance interaction through e-learning" (M=4.45 SD=0.73) and "Organising TPs to increase students' engagement through e-learning" (M= 4.35 SD=0.71).

The only item rated by academic staff as *desired* was Item 33 "Organising TPs to improve the creation of learner-centred learning strategies" (M= 4.10 SD=0.82), which was ranked in sixth place.

Generally, academic staff rated the *pedagogical training* section as *highly desired* support. This can be seen from the overall mean of this section (M= 4.45 SD= 0.56).

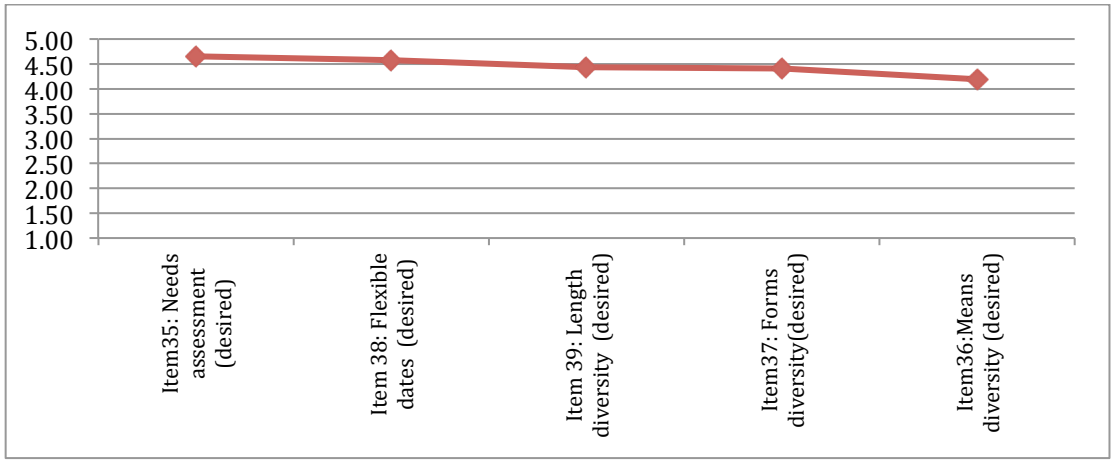
Question 3.6: What is the required flexibility of the provided training programme?

Table 4.39 and Figure 4.25 present academic staff's assessment (n= 518) of the desired flexibility of training programs.

Table 4.39. Academic Staff's Assessment of Desired Flexibility of Training Programmes

ITEM			Degree of Desire of Ins. Supp.					Mean	Std. Dev.	Rank*
			H.Des.	Des.	Neutral	Un.D.	H. UnD.			
35	Designing TP based on accurate need assessments.	F	376	110	27	3	2	4.65	0.64	1
		%	72.6	21.2	5.2	0.6	0.4			
36	TP diversity in terms of means (e.g. face-to-face and online).	F	173	289	39	17	0	4.19	0.71	5
		%	33.4	55.8	7.5	3.3	0			
37	TP diversity in terms of forms (e.g. one-to-one and team-based).	F	273	192	47	5	1	4.41	0.71	4
		%	52.7	37.1	9.1	1	0.2			
38	Organising TP in fixable dates.	F	362	98	54	4	0	4.58	0.71	2
		%	69.9	18.9	10.4	0.8	0			
39	TP diversity in terms of durations (short term-long term).	F	297	158	57	5	1	4.44	0.74	3
		%	57.3	30.5	11	1	0.2			
Total		F	518	Training programmes flexibility (actual) section's Mean= 4.45 Std. Dev.= 0.56							
		%	100							

Figure 4.25. Academic Staff's Assessment of Desired Flexibility of Training Programmes



The results in Table 4.39 and Figure 4.25 indicate that academic staff rated four out of five training flexibility items as *highly desired* and only one item was rated as *desired* with means ranging between 4.19 and 4.65.

More than 90% of academic staff rated "Designing TP based on accurate need assessments" (Item 35) as highly desired (or *desired*) support. This type of support ranked first in the training flexibility section (M=4.65 SD=0.64). Additionally, Items 38, 39 and 37 ranked second, third and fourth respectively; all these items were rated by academic staff as *highly desired* support; these were: "Organising TPs on fixable dates" (M= 4.58 SD=0.71), "TPs diversity in

terms of duration (short term-long term)" (M= 4.44 SD=0.74) and "TPs diversity in terms of form, e.g. one-to-one and team-based" (M= 4.41 SD=0.71).

The only item rated by academic staff as *desired* was item 36, "TP diversity in terms of means, e.g. face-to-face and online" (M= 4.19 SD=0.71) which put this support item sixth.

Generally, academic staff rated the *training programs' flexibility* section as *highly desired* support. This can be seen from the overall mean of the section (M= 4.45 SD= 0.58).

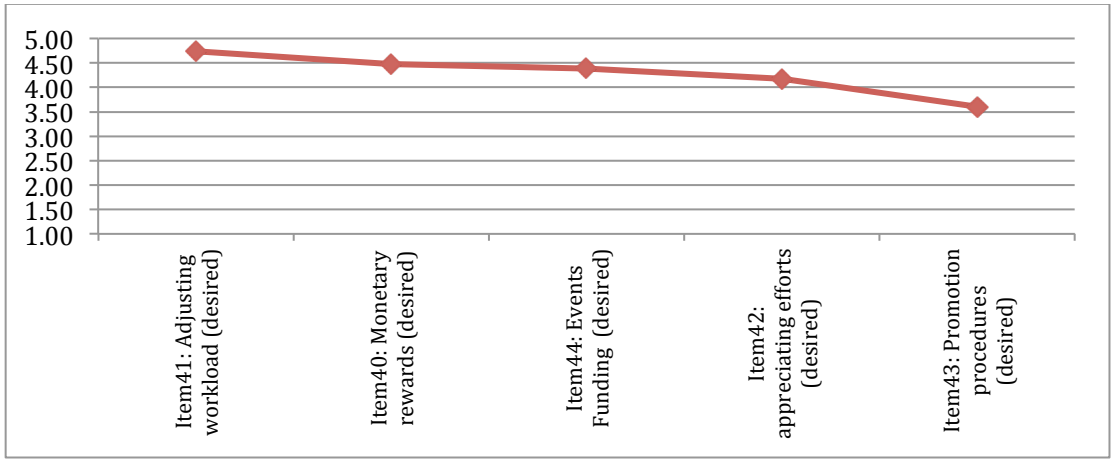
Question 3.7: What are the desired incentives that should be provided?

Table 4.40 and Figure 4.26 present academic staff's assessment (n= 518) of the importance of five items of desired institutional incentives which include the policies and procedures legislated by the university to encourage academic staff to participate in e-learning initiatives.

Table 4.40. Academic Staff's Assessment of Desired Institutional Incentives

ITEM			Degree of Desire of Ins. Supp.					Mean	Std. Dev.	Rank*
			H.Des.	Des.	Neutral	Un.D.	H. UnD.			
40	Developing monetary compensation schemes.	F	324	125	61	7	1	4.47	0.77	2
		%	62.5	24.1	11.8	1.4	0.2			
41	Adjusting traditional workload credits.	F	412	91	7	5	3	4.75	0.59	1
		%	79.5	17.6	1.4	1	0.6			
42	Appreciating academic staff participation in e-learning.	F	216	185	110	6	1	4.18	0.81	4
		%	41.7	35.7	21.2	1.2	0.2			
43	Taking into account academic staff efforts in the promotion processes.	F	103	202	137	57	19	3.60	1.04	5
		%	19.9	39	26.4	11	3.7			
44	Arranging funded travel to attend e-learning events.	F	258	204	54	1	1	4.38	0.69	3
		%	49.8	39.4	10.4	0.2	0.2			
		F	518	Institutional incentives (desired) section's Mean= 4.28 Std. Dev. = 0.60						
		%	100							

Figure 4.26. Academic Staff's Assessment of Desired Institutional Incentives



The results in Table 4.40 and Figure 4.26 indicate that academic staff rated three out of five *institutional incentives* items as *highly desired* and two as *desired* with means ranging between 3.60 and 4.75.

More than 97% of academic staff rated "Adjusting traditional workload credits" (Item 41) as highly desired (or *desired*) support. This type of support was ranked first in the *institutional incentives* section (M=4.75 SD=0.59). Furthermore, academic staff rated Item 40 "Developing monetary compensation schemes" and Item 44 "Arranging funded travel to attend e-learning events" as *highly desired* support with means of 4.47 and 4.38 which ranked them second and third respectively.

Academic staff rated two items as *desired*; these were "Appreciating academic staff's participation in e-learning" (Item 42, M= 4.18 SD=0.81) and "Taking into account academic staff efforts in the promotion processes" (Item 43, M= 3.60 SD=1.04), which were ranked fifth and sixth respectively. Generally, academic staff rated *institutional incentives* section as *highly desired* support. This can be seen from the overall mean for the section (M= 4.28 SD= 0.60).

3.8. The Desired institutional support (all items and sections)

Table 4.41 and Figure 4.27 rank all 44 of the questionnaire's items in the *desired* dimension in descending order. It can be seen from Table 4.41 that all items' means ranged between 3.55 and 4.75. According to Table 4.33, all these means are located in either the *highly desired* or *desired* support categories. Thus, no institutional support item was reported as *neutral* or *undesired and highly undesired* support. Most importantly, the overall means of *desired* institutional support (all 44 items) is M=4.41 (SD=0.47) which clearly indicates *highly desired* institutional support.

Table 4.41. Academic Staff's Assessment and Ranking of Desired Institutional Support

Item No.	Item	Section	Mean	Rank
Item41	Adjusting traditional workload credits.	Institutional incentives	4.75	**1**
Item11	Providing reliable technical infrastructure.	Technical Support	4.72	**2**
Item14	Running a 24X7 help desk to provide support.	Technical Support	4.70	**3**
Item6	The provided support is keeping pace with e-learning programmes growth.	Supportive Institutional Practices	4.70	**4**
Item34	Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	Training Programme Flexibility	4.68	**5**
Item8	Identifying the barriers of involvement in e-learning.	Supportive Institutional Practices	4.67	**6**

Item No.	Item	Section	Mean	Rank
Item35	Designing TP based on accurate need assessments.	Training Programme Flexibility	4.65	**7**
Item7	Enlightening AS about e-learning educational opportunities.	Supportive Institutional Practices	4.64	**8**
Item13	Ensuring continuous access to the VLE.	Technical Support	4.62	**9**
Item12	Offering user-friendly Virtual Learning Environments (VLE).	Technical Support	4.60	**10**
Item16	Offering facilities to participate in e-learning (e.g. Laptops, tablet..etc).	Technical Support	4.60	**11**
Item29	Organising TP to improve instructional design skills.	Pedagogical Training	4.58	**12**
Item 38	Organising TP in fixable dates.	Training Programme Flexibility	4.58	**13**
Item25	Organising TP to increase course content management skills in the VLE.	Technical Training	4.54	**14**
Item30	Organising TP to assist AS reconceptualising my role in e-learning environments.	Pedagogical Training	4.52	**15**
Item28	Organising TP to increase assessment skills in the VLE.	Technical Training	4.50	**16**
Item9	E-learning initiatives are driven by researches' findings.	Supportive Institutional Practices	4.48	**17**
Item24	Organising TP to increase course management skills in the VLE.	Technical Training	4.48	**18**
Item40	Developing monetary compensation schemes.	Institutional incentives	4.47	**19**
Item2	Stability of e-learning strategies.	Supportive Institutional Practices	4.46	**20**
Item31	Organising TP to enhance the interaction through e-learning.	Pedagogical Training	4.45	**21**
Item23	Organising TP to enhance using ICT in teaching.	Technical Training	4.45	**22**
Item21	Producing guides to increase courses' pedagogical quality.	Pedagogical Support	4.44	**23**
Item 39	TP diversity in terms of durations (short term-long term).	Training Programme Flexibility	4.44	**24**
Item1	Clarity of e-learning strategies.	Supportive Institutional Practices	4.42	**25**
Item20	Running pedagogical consultations units.	Pedagogical Support	4.41	**26**
Item37	TP diversity in terms of forms (e.g. one-to-one and team-based).	Training Programme Flexibility	4.41	**27**
Item19	Providing prepared pedagogical templates for e-learning course.	Pedagogical Support	4.39	**28**
Item44	Arranging funded travel to attend e-learning events.	Institutional incentives	4.38	**29**
Item4	Representing of academic staff in e-learning planning.	Supportive Institutional Practices	4.35	**30**
Item32	Organising TP to increase students' engagement through e-learning.	Pedagogical Training	4.35	**31**
Item15	Running units for educational multimedia production.	Technical Support	4.35	**32**
Item5	Organising TP to guide to the best practices in blending face-to-face teaching and e-learning .	Supportive Institutional Practices	4.34	**33**
Item18	Providing authoring tools to design e-learning courses.	Pedagogical Support	4.34	**34**
Item26	Organising TP to increase my skills in using communication tools in the VLE.	Technical Training	4.27	**35**
Item27	Organising TP to increase students' progress tracking skills in the VLE.	Technical Training	4.25	**36**
Item3	Clarifying e-learning importance in the university strategic vision.	Supportive Institutional Practices	4.23	**37**
Item36	TP diversity in terms of means (e.g. face-to-face and online).	Training Programme Flexibility	4.19	**38**
Item42	Appreciating academic staff participation in e-learning.	Institutional incentives	4.18	**39**
Item 22	Establishing online communities to share e-learning experiences.	Pedagogical Support	4.12	**40**
Item33	Organising TP to improve creating learner-centred learning strategies.	Pedagogical Training	4.10	**41**
Item17	Facilitating cooperation with instructional designers.	Pedagogical Support	4.01	**42**
Item43	Taking into account academic staff efforts in the promotion processes.	Institutional incentives	3.60	**43**
Item10	Departments' role in encouraging AS to participate in e-learning.	Supportive Institutional Practices	3.55	**44**
	Desired institutional support Mean= 4. 41 Std. Dev.= 0.47			

According to the means listed in Table 4.41, desired institutional support items can be divided into two main categories. Firstly, institutional support items which were rated by academic staff as *highly desired* which includes thirty seven items. The highest five items in this category are: Item 41, Adjusting traditional workload credits (M=4.75); Item 11, Providing reliable technical infrastructure (M=4.72); Item 14, Running a 24/7 help desk to provide support (M=4.70); Item 6, The provided support keeps pace with e-learning programs' growth (M=4.70); and Item 34, Organising TPs to guide the best practices in blending face-to-face teaching and e-learning (M= 4.68). On other hand, the lowest five items in this category are: Item5, Organising TPs to guide to the best practices in blending face-to-face teaching and e-learning (M=4.34); Item 18, Providing authoring tools to design e-learning courses (M=4.34); Item 26, Organising TPs to increase skills in using communication tools in the VLE (M=4.27); Item 27, Organising TPs to increase students' progress tracking skills in the VLE (M=4.25); and Item 3, Clarifying e-learning importance in the university's strategic vision (M= 4.23).

The second category, institutional support items which were rated by academic staff as *desired*, includes seven items. These items are: Item 36, TP diversity in terms of means (e.g. face-to-face and online) (M=4.19); Item 42, Appreciating academic staff's participation in e-learning (M=4.18); Item 22, Establishing online communities to share e-learning experiences (M=4.12); Item 33, Organising TPs to improve creating learner-centred learning strategies (M=4.10); Item 17, Facilitating cooperation with instructional designers (M= 4.01); Item 43, Taking into account academic staff's efforts in the promotion processes (M=3.60); and finally, Item 10, Department's role in encouraging AS to participate in e-learning (M=3.55).

Figure 4.27. The desired institutional support

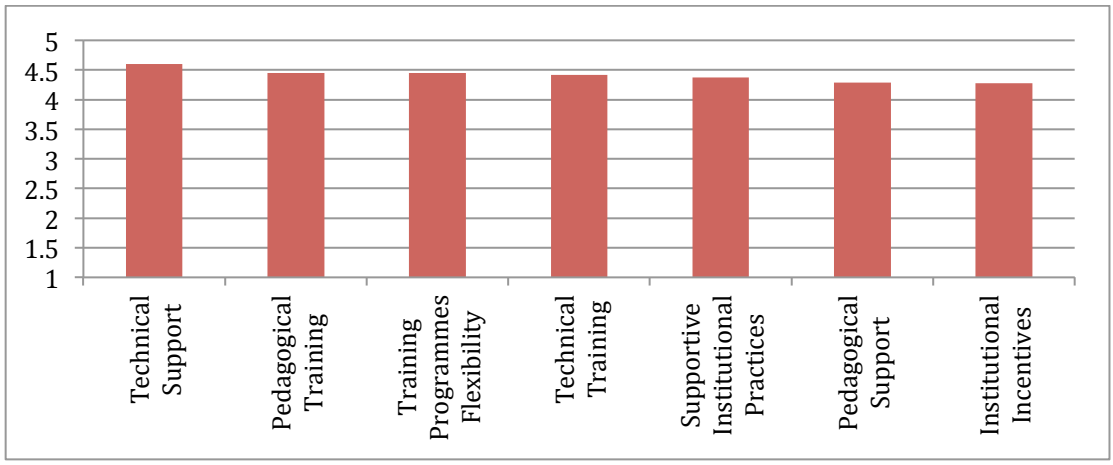
Table 4.42 and Figure 4.28 present descriptive information (i.e. means, standard deviation and ranks) for all seven institutional sections (desired dimension): supportive institutional practices, technical support, pedagogical support, technical training, pedagogical training, training programs' flexibility and institutional incentives.

Table 4.42. Academic Staff's Assessment of Desired Institutional Support Sections

Section No.	Section	Mean	Std. Dev.	Rank
1	Supportive Institutional Practices	4.38	0.52	5
2	Technical Support	4.60	0.44	1
3	Pedagogical Support	4.29	0.60	6
4	Technical Training	4.42	0.49	4
5	Pedagogical Training	4.45	0.56	3
6	Training Programmes Flexibility	4.45	0.56	2
7	Institutional Incentives	4.28	0.60	7
Desired Institutional Support		**Mean=4.41**	**Std. Dev. = 0.47**	

It can be seen from Table 4.42 and Figure 4.28 that the means of all sections ranged between 4.38 and 4.60. According to Table 4.33, all these means are located in the category *highly desired* support. Technical support (six items) ranked first with a mean of 4.60. Training programmes flexibility section (5 items) (M=4.454) and pedagogical training (six items) (M= 4.447) ranked second and third respectively. Fourth was technical training (six items) (M=4.42 SD= 0.49) followed by supportive institutional practices (10 items) (M=4.38 SD= 0.52), pedagogical support which consisted of six items (M=4.29m SD=0.60) and institutional incentives, five items, (M=4.28 SD=0.60) ranked sixth and seventh respectively.

Figure 4.28. Academic Staff's Assessment of Desired Institutional Support Sections



4.4. The Differences in desired institutional support

This section aims to present the results of the fourth question that investigated the differences in academic staff responses according to university, faculty, gender, main purpose of using VLE and attitude toward participation in e-learning.

Question 4. Are there statistically significant differences in academic staff's perceptions about desired institutional support according to: university, faculty, gender, purpose of using the VLE and attitude towards e-learning? (Five sub-questions)

As was clarified in Chapters One and Three, this question consists of five sub-questions to obtain data about the universities, faculties, gender, purpose of use and attitude towards e-learning.

Question 4.1: Are there statistically significant differences in academic staff's perceptions about desired institutional support according to university?

Table 4.43 and Figure 4.29 show means of the responses of academic staff in five universities in Saudi Arabia (Alpha University (AU), Beta University (BU), Gamma University, (GU) Delta University (DU), Epsilon University (EU)) regarding the importance of 44 items (Table 4.43) and seven sections (Table 4.44).

Table 4.43. Academic Staff 's Assessment of Desired Institutional Support Items in the Five Universities

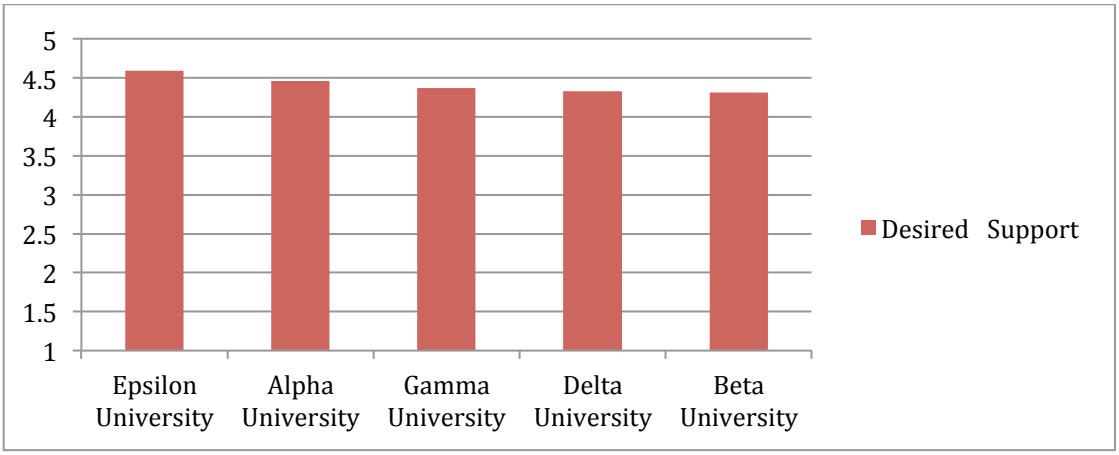
No	Sec.	Item	AU (M)	AU (R)	BU (M)	BU (R)	GU (M)	GU (R)	DU (M)	DU (R)	EU (M)	EU (R)	ALL M	ALL R
1	Supportive Institutional Practices	Clarity of e-learning strategies.	4.50	21	4.36	22	4.42	21	4.37	24	4.43	35	4.42	25
2		Stability of e-learning strategies.	4.66	10	4.26	32	4.70	2	4.06	39	4.53	28	4.46	20
3		Clarifying e-learning importance in the university strategic vision.	4.31	36	4.18	34	4.31	29	4.13	37	4.20	41	4.23	37
4		Representing of academic staff in e-learning planning.	4.41	28	4.34	26	4.28	32	4.31	30	4.36	37	4.35	30
5		Encouraging institutional discussion during e-learning initiatives phases.	4.43	27	4.35	24	4.31	30	4.14	36	4.44	34	4.34	33
6		The provided support is keeping pace with e-learning programmes growth.	4.84	1	4.59	5	4.60	7	4.59	8	4.88	7	4.70	4
7		Enlightening AS about e-learning educational opportunities.	4.81	3	4.55	7	4.44	18	4.49	11	4.89	5	4.64	8
8		Identifying the barriers of involvement in e-learning.	4.77	4	4.60	4	4.52	13	4.62	5	4.80	14	4.67	6
9		E-learning initiatives are driven by researches' findings.	4.47	23	4.34	27	4.51	14	4.41	18	4.73	17	4.48	17
10		Departments' role in encouraging AS to participate in e-learning.	3.54	43	3.36	44	3.71	43	3.43	44	3.79	43	3.55	44
11	Technical Support	Providing reliable technical infrastructure.	4.74	6	4.67	3	4.63	6	4.69	2	4.88	8	4.72	2
12		Offering user-friendly Virtual Learning Environments (VLE).	4.69	9	4.37	19	4.59	9	4.59	9	4.76	16	4.60	10
13		Ensuring continuous access to the VLE.	4.61	13	4.59	6	4.46	16	4.65	4	4.85	11	4.62	9
14		Running a 24X7 help desk to provide support.	4.66	11	4.69	2	4.53	12	4.78	1	4.94	3	4.70	3

15		Running units for educational multimedia production.	4.36	31	4.17	35	4.36	26	4.36	26	4.53	29	4.35	32
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs, etc.).	4.55	17	4.37	20	4.71	1	4.60	6	4.86	9	4.60	11
17	Pedagogical Support	Facilitating cooperation with instructional designers.	4.15	40	3.81	42	4.24	34	3.79	42	4.01	42	4.01	42
18		Providing authoring tools to design e-learning courses.	4.41	29	4.31	30	4.17	40	4.20	34	4.64	23	4.34	34
19		Providing prepared pedagogical templates for e-learning course.	4.46	25	4.29	31	4.24	35	4.36	27	4.64	24	4.39	28
20		Running pedagogical consultations units.	4.45	26	4.47	10	4.39	23	4.26	32	4.46	33	4.41	26
21		Producing guides to increase courses' pedagogical quality.	4.51	20	4.35	25	4.18	39	4.40	20	4.79	15	4.44	23
22		Establishing online communities to share e-learning experiences.	4.14	42	3.87	41	3.97	41	4.22	33	4.53	30	4.12	40
23	Technical Training	Organising TP to enhance using ICT in teaching.	4.47	24	4.34	28	4.24	36	4.45	14	4.83	12	4.45	22
24		Organising TP to increase course management skills in the VLE.	4.54	18	4.39	17	4.24	37	4.40	21	4.86	10	4.48	18
25		Organising TP to increase course content management skills in the VLE.	4.57	16	4.43	13	4.33	27	4.43	17	4.99	1	4.54	14
26		Organising TP to increase my skills in using communication tools in the VLE.	4.31	37	4.13	36	4.47	15	4.20	35	4.25	39	4.27	35
27		Organising TP to increase students' progress tracking skills in the VLE.	4.34	33	4.12	38	4.43	20	4.12	38	4.24	40	4.25	36
28		Organising TP to increase assessments skills in the VLE.	4.58	15	4.43	14	4.55	11	4.34	28	4.59	26	4.50	16
29	Pedagogical Training	Organising TP to improve instructional design skills.	4.59	14	4.53	8	4.64	5	4.51	10	4.68	18	4.58	12
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	4.63	12	4.47	11	4.41	22	4.44	15	4.65	21	4.52	15
31		Organising TP to enhance the interaction through e-learning.	4.41	30	4.39	18	4.44	19	4.47	13	4.63	25	4.45	21
32		Organising TP to increase students' engagement through e-learning.	4.35	32	4.22	33	4.33	28	4.41	19	4.49	32	4.35	31
33		Organising TP to improve creating learner-centred learning strategies.	4.19	39	3.93	40	4.20	38	3.88	41	4.29	38	4.10	41
34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	4.76	5	4.43	15	4.68	3	4.60	7	4.96	2	4.68	5
35	TP Flexibility	Designing TP based on accurate need assessments.	4.73	7	4.50	9	4.66	4	4.49	12	4.90	4	4.65	7
36		TP diversity in terms of means (e.g. face-to-face and online).	4.22	38	4.03	39	4.30	31	4.05	40	4.41	36	4.19	38
37		TP diversity in terms of forms (e.g. one-to-one and team-based).	4.34	34	4.36	23	4.39	24	4.40	22	4.65	22	4.41	27
38		Organising TP in fixable dates.	4.71	8	4.40	16	4.56	10	4.40	23	4.83	13	4.58	13
39		TP diversity in terms of durations (short term-long term).	4.53	19	4.37	21	4.25	33	4.37	25	4.68	19	4.44	24
40	Institutional Incentives	Developing monetary compensation schemes.	4.48	22	4.45	12	4.38	25	4.44	16	4.66	20	4.47	19
41		Adjusting traditional workload credits.	4.83	2	4.71	1	4.60	8	4.69	3	4.89	6	4.75	1
42		Appreciating academic staff participation in e-learning.	4.15	41	4.13	37	3.86	42	4.33	29	4.50	31	4.18	39
43		Taking into account academic staff efforts in the promotion processes.	3.50	44	3.68	43	3.65	44	3.52	43	3.71	44	3.60	43
44		Arranging funded travel to attend e-learning events.	4.34	35	4.32	29	4.45	17	4.31	31	4.56	27	4.38	29
ALL			4.46		4.31		4.37		4.33		4.59		4.41	

Table 4.44. Academic Staff Assessment of Desired Institutional Support Sections in the Five Universities

University	N	Mean and Rank									Std. Deviation
		SIP	TS	PS	TT	PT	TF	II	M	R	
Alpha	140	4.47	4.60	4.35	4.47	4.49	4.51	4.26	4.46	2	0.36
		4	1	6	5	3	2	7			
Beta	116	4.29	4.48	4.19	4.31	4.33	4.33	4.26	4.31	5	0.58
		5	1	7	4	3	2	6			
Gamma	96	4.38	4.55	4.20	4.38	4.45	4.43	4.19	4.37	3	0.36
		4	1	6	5	2	3	7			
Delta	86	4.25	4.61	4.20	4.32	4.39	4.34	4.26	4.33	4	0.60
		6	1	7	4	2	3	5			
Epsilon	80	4.50	4.80	4.51	4.63	4.61	4.69	4.47	4.59	1	0.37
		6	1	5	3	4	2	7			
ALL	518	4.38	4.60	4.29	4.42	4.45	4.45	4.28	4.41		0.47
		5	1	6	4	3	2	7			

Figure 4.29. Academic Staff Assessment of Desired Institutional Support in the Five Universities



According to the ranges mentioned in Table 4.33 which are used to explain the desired institutional support means, academic staff in all five universities reported that institutional support is *highly desired* . From Table 4.44 and Figure 4.29 it can be seen that academic staff in Epsilon University reported the greatest desire for institutional support (M=4.59 SD=0.37) followed by academic staff in Alpha University (M=4.46 SD=0.36), Gamma University (M=4.37 SD=0.36), Delta University (M=4.33 SD=0.60) and Beta University (M=4.31 SD=0.58).

In general, academic staff in the five universities rated the desired institutional support sections in a convergent manner rating the majority of seven sections as *highly desired*. The exceptions are found in Beta University where academic staff reported that pedagogical support (M=4.19) is *desired*. In addition, academic staff in Gamma University rated institutional incentives as a *desired* support (M= 4.19).

This agreement in the academic staff rating of institutional support's sections appears in the sections' ranking. For example, the technical support section ranked first in all five universities. Furthermore, training flexibility ranked second in three universities (Alpha, Beta and Epsilon) and third in two universities (Gamma and Delta). Pedagogical training was ranked second and third in four universities. On the other hand, institutional incentives and pedagogical support ranked sixth and seventh in four universities.

In terms of institutional support items, it can be noted from the means presented in Table 4.43 that more respondents from Epsilon University reported more desire for 36 institutional support items than the other four universities.

Meanwhile, academic staff in Gamma University reported more desire for five institutional support items (Item 2, 3, 17, 26 and 27) than the other universities. Furthermore, academic staff in Alpha University reported more desire for two institutional support items (Item 1 and 4) and academic staff in Beta University reported more desire for one institutional support item (Item 20) than the other universities. On the other hand, academic staff in Gamma University reported less desire for 17 institutional support items than the other universities. Meanwhile, academic staff in Beta University and Delta University reported less desire for 13 and 12 institutional support items respectively. Finally, academic staff in Alpha University reported less desire than the other universities for two institutional support items (Items 2 and 4).

To find out if these differences are statistically significant a one-way ANOVA was used; the result indicates that there were statistically *significant differences* between universities in desired institutional support ($F=5.526$, $p<0.05$). Furthermore, there were statistically *significant differences* between universities in all seven sections of desired institutional support (Table 4.45).

Table 4.45. ONE-WAY ANOVA's Results (Differences Between Universities-Desired)

Section		Sum of Squares	df	Mean Square	F	Sig.
Supportive Institutional Practices	Between Groups	4.645	4	1.161	4.380	.002
	Within Groups	135.998	513	.265		
	Total	140.643	517			
Technical Support	Between Groups	5.300	4	1.325	7.289	.000
	Within Groups	93.262	513	.182		
	Total	98.563	517			
Pedagogical Support	Between Groups	7.203	4	1.801	5.216	.000
	Within Groups	177.110	513	.345		
	Total	184.313	517			
Technical Training	Between Groups	6.185	4	1.546	6.870	.000
	Within Groups	115.467	513	.225		
	Total	121.652	517			
Pedagogical Training	Between Groups	4.475	4	1.119	3.682	.006
	Within Groups	155.851	513	.304		
	Total	160.325	517			
Training Flexibility	Between Groups	7.876	4	1.969	6.486	.000
	Within Groups	155.748	513	.304		
	Total	163.625	517			
Institutional Incentives	Between Groups	3.722	4	.930	2.637	.033
	Within Groups	181.020	513	.353		
	Total	184.742	517			
All Sections	Between Groups	4.797	4	1.199	5.526	.000
	Within Groups	111.332	513	.217		
	Total	116.128	517			

Scheffe's tests were used to determine the source of difference; Table 4.46 presents the results which indicate that there were statistically significant differences in desired institutional support between Epsilon University (M=

4.59) and Beta University (M= 4.31), Epsilon University (M= 4.59) and Gamma University (M= 4.37), and finally between Epsilon University (M= 4.59) and Delta University (M=4.33). The following tables show Scheffe's test result for the seven institutional support sections.

Table 4.46. Scheffe's Results (Differences Between Universities- Desired)

Section One

University Mean	AU 4.47	BU 4.29	GU 4.38	DU 4.25	EU 4.50
AU 4.47					
BU 4.29	0.10				
GU 4.38	0.75	0.83			
DU 4.25	0.05*	0.99	0.61		
EU 4.50	1.00	0.10	0.65	0.05*	

Section two

University Mean	AU 4.60	BU 4.48	GU 4.55	DU 4.61	EU 4.80
AU 4.60					
BU 4.48	0.24				
GU 4.55	0.92	0.84			
DU 4.61	1.00	0.29	0.90		
EU 4.80	0.03*	0.00*	0.00*	0.09*	

Section three

University Mean	AU 4.35	BU 4.19	GU 4.20	DU 4.20	EU 4.51
AU 4.35					
BU 4.19	0.27				
GU 4.20	0.40	1.00			
DU 4.20	0.48	1.00	1.00		
EU 4.51	0.46	0.01*	0.02*	0.02*	

Section four

University Mean	AU 4.47	BU 4.31	GU 4.38	DU 4.32	EU 4.63
AU 4.47					
BU 4.31	0.12				
GU 4.38	0.70	0.89			
DU 4.32	0.27	1.00	0.96		
EU 4.63	0.25	0.00*	0.02*	0.00*	

Section five

University Mean	AU 4.49	BU 4.33	GU 4.45	DU 4.39	EU 4.61
AU 4.49					
BU 4.33	0.25				
GU 4.45	0.99	0.64			
DU 4.39	0.76	0.97	0.97		
EU 4.61	0.62	0.01*	0.41	0.13	

Section six

University Mean	AU 4.51	BU 4.33	GU 4.43	DU 4.34	EU 4.69
AU 4.51					
BU 4.33	0.17				
GU 4.43	0.90	0.78			
DU 4.34	0.30	1.00	0.87		
EU 4.69	0.22	0.00*	0.05*	0.00*	

Section seven

University Mean	AU 4.26	BU 4.62	GU 4.19	EU 4.62	TU 4.47
AU 4.26					
BU 4.62	1.00				
GU 4.19	0.94	0.95			
DU 4.62	1.00	1.00	0.96		
EU 4.47	0.19	0.22	0.05*	0.29	

All Section

University Mean	AU 4.46	BU 4.31	GU 4.37	DU 4.33	EU 4.59
AU 4.46					
BU 4.31	0.19				
GU 4.37	0.75	0.93			
DU 4.33	0.45	1.00	0.99		
EU 4.59	0.35	0.00*	0.04*	0.01*	

Question 4.2: Are there statistically significant differences in academic staff's perceptions about desired institutional support according to faculty?

The following tables and Figure 4.30 show the responses of academic staff in four faculities (Humanities, Business, Science and Engineering) in five universities in Saudi Arabia regarding the importance of 44 items (Table 4.47) and seven sections (Table 4.48)

Table 4.47. Academic Staff 's Assessment of Desired Institutional Support Items in the Four Faculties

No	Sec.	Item	Hu (M)	Hu (R)	Biz (M)	Biz (R)	Sci. (M)	Sci. (R)	Eng. (M)	Eng. (R)	All. M	All. R
1	Supportive Institutional Practices	Clarity of e-learning strategies.	4.05	33	4.56	17	4.54	23	4.61	16	4.42	25
2		Stability of e-learning strategies.	4.20	21	4.51	24	4.56	19	4.61	17	4.46	20
3		Clarifying e-learning importance in the university strategic vision.	3.92	40	4.42	33	4.30	35	4.39	38	4.23	37
4		Representing of academic staff in e-learning planning.	4.19	22	4.39	34	4.41	32	4.43	36	4.35	30

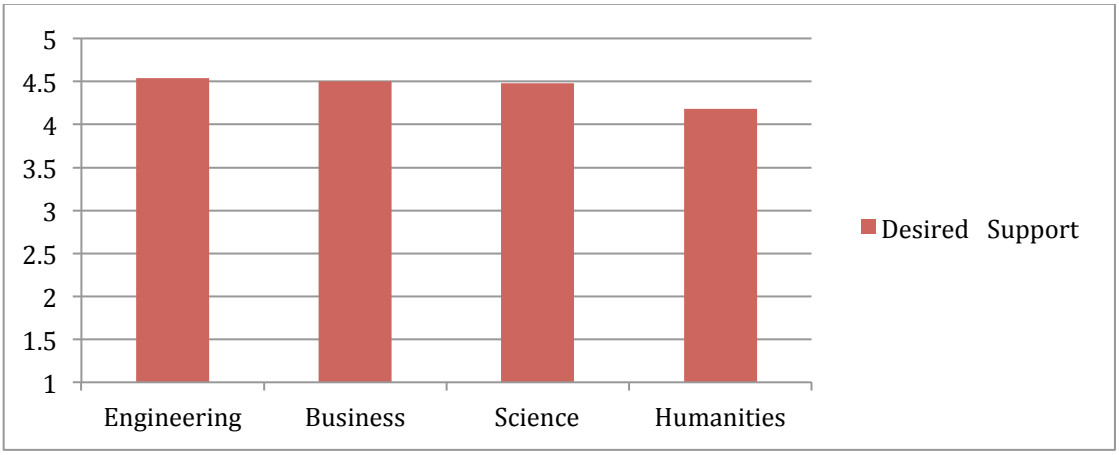
5		Encouraging institutional discussion during e-learning initiatives phases.	4.08	31	4.45	32	4.38	34	4.54	28	4.34	33
6		The provided support is keeping pace with e-learning programmes growth.	4.56	4	4.75	2	4.75	5	4.79	2	4.70	4
7		Enlightening AS about e-learning educational opportunities.	4.56	5	4.73	4	4.71	9	4.57	25	4.64	8
8		Identifying the barriers of involvement in e-learning.	4.46	9	4.75	3	4.76	4	4.74	5	4.67	6
9		E-learning initiatives are driven by researches' findings.	4.24	18	4.56	18	4.58	17	4.58	23	4.48	17
10		Departments' role in encouraging AS to participate in e-learning.	3.12	43	3.78	44	3.55	44	3.89	44	3.55	44
11	Technical Support	Providing reliable technical infrastructure.	4.62	3	4.72	6	4.79	1	4.74	6	4.72	2
12		Offering user-friendly Virtual Learning Environments (VLE).	4.55	6	4.51	25	4.65	11	4.68	10	4.60	10
13		Ensuring continuous access to the VLE.	4.52	8	4.70	7	4.63	14	4.67	11	4.62	9
14		Running a 24X7 help desk to provide support.	4.68	2	4.69	9	4.77	3	4.67	12	4.70	3
15		Running units for educational multimedia production.	4.07	32	4.36	36	4.46	27	4.56	26	4.35	32
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs, etc.).	4.43	12	4.62	12	4.63	15	4.75	3	4.60	11
17	Pedagogical Support	Facilitating cooperation with instructional designers.	3.56	42	4.20	40	4.04	42	4.38	39	4.01	42
18		Providing authoring tools to design e-learning courses.	4.03	36	4.49	30	4.41	33	4.52	30	4.34	34
19		Providing prepared pedagogical templates for e-learning course.	4.09	28	4.50	26	4.50	25	4.56	27	4.39	28
20		Running pedagogical consultations units.	4.13	26	4.50	27	4.48	26	4.62	14	4.41	26
21		Producing guides to increase courses' pedagogical quality.	4.24	19	4.59	14	4.52	24	4.43	37	4.44	23
22		Establishing online communities to share e-learning experiences.	3.93	39	4.17	42	4.19	39	4.23	41	4.12	40
23	Technical Training	Organising TP to enhance using ICT in teaching.	4.17	23	4.52	23	4.56	20	4.61	18	4.45	22
24		Organising TP to increase course management skills in the VLE.	4.26	16	4.50	28	4.58	18	4.61	19	4.48	18
25		Organising TP to increase course content management skills in the VLE.	4.36	13	4.56	19	4.65	12	4.61	20	4.54	14
26		Organising TP to increase my skills in using communication tools in the VLE.	4.02	37	4.38	35	4.28	37	4.50	32	4.27	35
27		Organising TP to increase students' progress tracking skills in the VLE.	4.05	34	4.35	37	4.26	38	4.44	34	4.25	36
28		Organising TP to increase assessments skills in the VLE.	4.33	14	4.57	15	4.56	21	4.59	21	4.50	16
29	Pedagogical Training	Organising TP to improve instructional design skills.	4.24	20	4.70	8	4.72	8	4.75	4	4.58	12
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	4.26	17	4.65	10	4.65	13	4.59	22	4.52	15
31		Organising TP to enhance the interaction through e-learning.	4.09	29	4.57	16	4.55	22	4.70	9	4.45	21
32		Organising TP to increase students' engagement through e-learning.	4.04	35	4.47	31	4.43	31	4.54	29	4.35	31
33		Organising TP to improve creating learner-centred learning strategies.	3.75	41	4.18	41	4.13	41	4.44	35	4.10	41
34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	4.53	7	4.73	5	4.73	7	4.74	7	4.68	5
35	TP Flexibility	Designing TP based on accurate need assessments.	4.46	10	4.64	11	4.74	6	4.80	1	4.65	7
36		TP diversity in terms of means (e.g. face-to-face and online).	4.09	30	4.30	38	4.14	40	4.29	40	4.19	38
37		TP diversity in terms of forms (e.g. one-to-one and team-based).	4.17	24	4.50	29	4.46	28	4.58	24	4.41	27
38		Organising TP in fixable dates.	4.44	11	4.60	13	4.67	10	4.63	13	4.58	13
39		TP diversity in terms of durations (short term-long term).	4.30	15	4.56	20	4.45	30	4.49	33	4.44	24
40	Institutional Incentives	Developing monetary compensation schemes.	4.15	25	4.56	21	4.63	16	4.62	15	4.47	19
41		Adjusting traditional workload credits.	4.69	1	4.78	1	4.79	2	4.72	8	4.75	1
42		Appreciating academic staff participation in e-learning.	3.95	38	4.30	39	4.30	36	4.19	42	4.18	39
43		Taking into account academic staff efforts in the promotion processes.	3.05	44	3.94	43	3.68	43	3.91	43	3.60	43
44		Arranging funded travel to attend e-learning events.	4.11	27	4.53	22	4.46	29	4.51	31	4.38	29
ALL			4.18		4.50		4.48		4.54		4.41	

Table 4.48. Academic Staff 's Assessment of Desired Institutional Support Sections in the Four Faculties

Faculty	N	Mean and Rank									Std. Deviation
		SIP	TS	PS	TT	PT	TF	II	M	R	
Humanities	149	4.14	4.48	4.00	4.20	4.15	4.29	3.99	4.18	4	0.59
		5	1	6	3	4	2	7			
Business	115	4.49	4.60	4.41	4.48	4.55	4.52	4.42	4.50	2	0.39
		4	1	7	5	2	3	6			
Science	145	4.45	4.65	4.36	4.48	4.53	4.49	4.37	4.48	3	0.39
		5	1	7	4	2	3	6			
Engineering	109	4.52	4.68	4.46	4.56	4.63	4.56	4.39	4.54	1	0.37

		5	1	6	3	2	4	7			
ALL	518	4.38	4.60	4.29	4.42	4.45	4.45	4.28	4.41		0.47
		5	1	6	4	3	2	7			

Figure 4.30. Academic Staff 's Assessment of Desired Institutional Support in the Four Faculties



According to ranges mentioned in Table 4.33 and used to explain the desired instituonal support means, academic staff in three faculties (Engineering, Business and Science) rated institutional support as highly desired. From Table 4.48 and Figure 4.30, respondents in the engineering faculties reported the highest desire for institutional support (M=4.54 SD=0.37) followed by those in Business faculties (M=4.46 SD=0.36) and Science faculties (M=4.48 SD=0.39). Meanwhile, academic staff in Humanities faculties rated the institutional support as desired (M=4.18). In general, academic staff in the four faculties rated the desired institutional support sections in a convergent manner rating the majority of seven sections as *highly desired.* Exceptions are found in the Humanities faculties where respondents reported that institutional incentives (M= 3.99), pedagogical support (M=4.00), supportive institutional practices (M= 4.14) and pedagogical training (M= 4.15) are *desired*. This agreement in the academic staff's rating of institutional support sections can be seen in the sections' ranking. For example, technical support ranked first in all four faculties. Furthermore, pedagogical training ranked second in three faculties (Business, Science and Engineering) and fourth in the Humanities faculties. On other hand, institutional incentives and pedagogical support ranked sixth and seventh in all four faculties.

In terms of institutional support items, it can be noted from the means presented in Table 4.47 that academic staff in the Engineering faculties reported more

desire for 27 institutional support items than the other faculties. Meanwhile, academic staff in the Business faculties reported more desire for nine institutional support items and very similarly academic staff in the Science faculties reported more desire for eight institutional support items than the other faculties. On the other hand, academic staff in the Humanities faculties reported less desire for 33 institutional support items than the other faculties, and academic staff in the Business faculties reported less desire for one institutional support item (item 12) than the other faculties.

To find out if these differences are statistically significant a one-way ANOVA was used; the result indicates that there were statistically *significant differences* between faculties in desired institutional support ($F=18.827$, $p<0.05$). Furthermore, there were statistically *significant differences* between faculties in all seven sections of desired institutional support (Table 4.49).

Table 4.49. ONE-WAY ANOVA's Results (Differences Between Faculties- Desired)

Section		Sum of Squares	df	Mean Square	F	Sig.
Supportive Institutional Practices	Between Groups	12.839	3	4.280	17.211	.000
	Within Groups	127.805	514	.249		
	Total	140.643	517			
Technical Support	Between Groups	3.286	3	1.095	5.910	.001
	Within Groups	95.276	514	.185		
	Total	98.563	517			
Pedagogical Support	Between Groups	17.868	3	5.956	18.393	.000
	Within Groups	166.445	514	.324		
	Total	184.313	517			
Technical Training	Between Groups	10.400	3	3.467	16.017	.000
	Within Groups	111.252	514	.216		
	Total	121.652	517			
Pedagogical Training	Between Groups	18.831	3	6.277	22.802	.000
	Within Groups	141.495	514	.275		
	Total	160.325	517			
Training Flexibility	Between Groups	5.755	3	1.918	6.245	.000
	Within Groups	157.870	514	.307		
	Total	163.625	517			
Institutional Incentives	Between Groups	17.144	3	5.715	17.527	.000
	Within Groups	167.598	514	.326		
	Total	184.742	517			
All Sections	Between Groups	11.497	3	3.832	18.827	.000
	Within Groups	104.631	514	.204		
	Total	116.128	517			

Scheffe's tests were used to determine the source of difference; Table 4.50 presents the results which indicate that there were statistically significant differences in desired institutional support between Humanities faculties (M= 4.18) and Business faculties (M= 4.50), Humanities faculties (M= 4.18) and Science faculties (M= 4.48) and finally between Humanities faculties (M= 4.18)

and Engineering faculties (M= 4.54). The following tables show Scheffe's test results for the seven institutional support sections.

Table 4.50. Scheffe's Results (Differences Between Faculties- Desired)

Section One

Faculty Mean	Hu 4.41	Biz. 4.49	Sci. 4.45	Eng. 4.52
Hu 4.41				
Biz. 4.49	0.00			
Sci. 4.45	0.00	0.96		
Eng. 4.52	0.00	0.99	0.82	

Section two

Faculty Mean	Hu 4.48	Biz. 4.60	Sci. 4.65	Eng. 4.68
Hu 4.48				
Biz. 4.60	0.17			
Sci. 4.65	0.01	0.79		
Eng. 4.68	0.00	0.58	0.98	

Section three

Faculty Mean	Hu 4.00	Biz. 4.41	Sci. 4.36	Eng. 4.46
Hu 1.83				
Biz. 4.41	0.00			
Sci. 4.36	0.00	0.93		
Eng. 4.46	0.00	0.93	0.59	

Section four

Faculty Mean	Hu 4.20	Biz. 4.48	Sci. 4.48	Eng. 4.56
Hu 4.20				
Biz. 4.48	0.00*			
Sci. 4.48	0.00*	1.00		
Eng. 4.56	0.00*	0.66	1.00	

Section five

Faculty Mean	Hu 4.15	Biz. 4.55	Sci. 4.53	Eng. 4.63
Hu 4.15				
Biz. 4.55	0.00*			
Sci. 4.53	0.00*	1.00		
Eng. 4.63	0.00*	0.76	0.59	

Section six

Faculty Mean	Hu 4.29	Biz. 4.52	Sci. 4.49	Eng. 4.56
Hu 4.29				
Biz. 4.52	0.01*			
Sci. 4.49	0.03*	0.98		
Eng. 4.56	0.00*	0.97	0.83	

Section seven

Faculty Mean	Hu 3.99	Biz. 4.42	Sci. 4.37	Eng. 4.39
Hu 3.99				
Biz. 4.42	0.00*			
Sci. 4.37	0.00*	0.92		
Eng. 4.39	0.00*	0.98	0.99	

All Section

Faculty Mean	Hu 4.18	Biz. 4.50	Sci. 4.48	Eng. 4.54
Hu 4.18				
Biz. 4.50	0.00*			
Sci. 4.48	0.00*	0.99		
Eng. 4.54	0.00*	0.90	0.74	

Question 4.3: Are there statistically significant differences in academic staff's perceptions about desired institutional support according to gender?

The following tables and Figure 4.31 show the means of male and female academic staff's responses regarding the importance of 44 items (Table 4.51) and seven sections (Table 4.52).

Table 4.51. Male and Female Academic Staff 's Assessment of Desired Institutional Support Items

No	Sec.	Item	Male (M)	Male (R)	Female (M)	Female (R)	All. M	All. R
1	Supportive Institutional Practices	Clarity of e-learning strategies.	4.36	27	4.54	21	4.42	25
2		Stability of e-learning strategies.	4.38	25	4.59	16	4.46	20
3		Clarifying e-learning importance in the university strategic vision.	4.18	38	4.33	37	4.23	37
4		Representing of academic staff in e-learning planning.	4.27	34	4.49	22	4.35	30
5		Encouraging institutional discussion during e-learning initiatives phases.	4.29	33	4.44	26	4.34	33
6		The provided support is keeping pace with e-learning programmes growth.	4.65	5	4.79	3	4.70	4
7		Enlightening AS about e-learning educational opportunities.	4.64	6	4.65	10	4.64	8
8		Identifying the barriers of involvement in e-learning.	4.59	9	4.81	2	4.67	6
9		E-learning initiatives are driven by researches' findings.	4.40	23	4.63	12	4.48	17
10		Departments' role in encouraging AS to participate in e-learning.	3.58	43	3.49	44	3.55	44
11	Technical Support	Providing reliable technical infrastructure.	4.71	1	4.74	6	4.72	2
12		Offering user-friendly Virtual Learning Environments (VLE).	4.59	10	4.61	14	4.60	10
13		Ensuring continuous access to the VLE.	4.62	7	4.62	13	4.62	9
14		Running a 24X7 help desk to provide support.	4.68	3	4.75	4	4.70	3

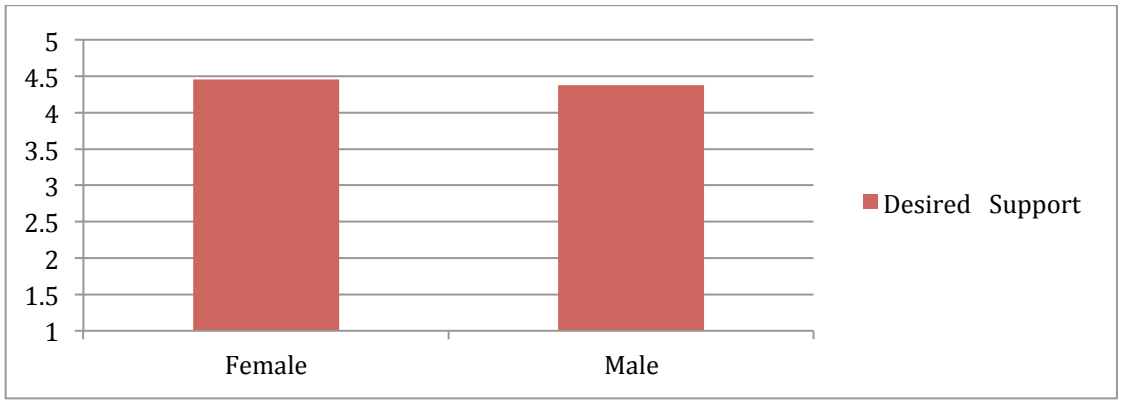
15		Running units for educational multimedia production.	4.31	30	4.42	27	4.35	32
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs, etc.).	4.59	11	4.60	15	4.60	11
17	Pedagogical Support	Facilitating cooperation with instructional designers.	3.97	42	4.08	41	4.01	42
18		Providing authoring tools to design e-learning courses.	4.31	31	4.41	29	4.34	34
19		Providing prepared pedagogical templates for e-learning course.	4.35	28	4.47	23	4.39	28
20		Running pedagogical consultations units.	4.33	29	4.57	19	4.41	26
21		Producing guides to increase courses' pedagogical quality.	4.42	20	4.47	24	4.44	23
22		Establishing online communities to share e-learning experiences.	4.16	40	4.05	42	4.12	40
23	Technical Training	Organising TP to enhance using ICT in teaching.	4.48	16	4.40	31	4.45	22
24		Organising TP to increase course management skills in the VLE.	4.52	14	4.40	32	4.48	18
25		Organising TP to increase course content management skills in the VLE.	4.58	12	4.46	25	4.54	14
26		Organising TP to increase my skills in using communication tools in the VLE.	4.22	36	4.37	34	4.27	35
27		Organising TP to increase students' progress tracking skills in the VLE.	4.20	37	4.35	36	4.25	36
28		Organising TP to increase assessments skills in the VLE.	4.42	21	4.66	9	4.50	16
29	Pedagogical Training	Organising TP to improve instructional design skills.	4.50	15	4.74	7	4.58	12
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	4.46	17	4.64	11	4.52	15
31		Organising TP to enhance the interaction through e-learning.	4.38	26	4.59	17	4.45	21
32		Organising TP to increase students' engagement through e-learning.	4.31	32	4.42	28	4.35	31
33		Organising TP to improve creating learner-centred learning strategies.	4.07	41	4.15	39	4.10	41
34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	4.66	4	4.71	8	4.68	5
35	TP Flexibility	Designing TP based on accurate need assessments.	4.60	8	4.75	5	4.65	7
36		TP diversity in terms of means (e.g. face-to-face and online).	4.23	35	4.13	40	4.19	38
37		TP diversity in terms of forms (e.g. one-to-one and team-based).	4.41	22	4.41	30	4.41	27
38		Organising TP in fixable dates.	4.57	13	4.59	18	4.58	13
39		TP diversity in terms of durations (short term-long term).	4.46	18	4.40	33	4.44	24
40	Institutional Incentives	Developing monetary compensation schemes.	4.43	19	4.55	20	4.47	19
41		Adjusting traditional workload credits.	4.71	2	4.82	1	4.75	1
42		Appreciating academic staff participation in e-learning.	4.17	39	4.19	38	4.18	39
43		Taking into account academic staff efforts in the promotion processes.	3.57	44	3.68	43	3.60	43
44		Arranging funded travel to attend e-learning events.	4.39	24	4.37	35	4.38	29
ALL			4.38		4.46		4.41	

Table 4.52. Male and Female Academic Staff 's Assessment of Desired Institutional Support Sections

Gender	N	Mean and Rank									Std. Deviation
		SIP	TS	PS	TT	PT	TF	II	M	R	
Male	336	4.33	4.58	4.26	4.40	4.40	4.45	4.25	4.38	2	0.49
		5	1	6	3	4	2	7			
Female	182	4.48	4.62	4.34	4.44	4.54	4.46	4.32	4.46	1	0.44
		3	1	6	5	2	4	7			
ALL	518	4.38	4.60	4.29	4.42	4.45	4.45	4.28	4.41		0.47
		5	1	6	4	3	2	7			

According to ranges mentioned in Table 4.33 and used to explain the desired institutional support means, both male and female academic staff reported that institutional support is *highly desired*. From Table 4.52 and Figure 4.31, female academic staff recorded higher desire for institutional support (M=4.46 SD=0.44) than male academic staff (M=4.38 SD=0.49).

Figure 4.31. Male and Female Academic Staff 's Assessment of Desired Institutional Support



In general, both male and female academic staff rated the desired institutional support sections in a convergent manner rating all seven sections as *highly desired* with means ranging from 4.32 to 4.62 (female) and 4.25 to 4.58 (male).

Male and female academic staff agreed on ranking technical support first (M= 4.58 by males and 4.62 by females), pedagogical support sixth (M= 4.26 by males and 4.34 by females) and institutional incentives seventh (M= 4.25 by males and 4.32 by females). On the other hand, they ranked four sections differently; training flexibility was ranked second by males (M=4.45) and fourth by females (4.46), pedagogical training was ranked second by females (M=4.54) and fourth by males (4.40), technical training was ranked third by males (4.40) and fifth by females (4.44) and supportive institutional practices was ranked third by females (M=4.48) and fifth by males (M= 4.33).

In terms of institutional support items, it can be noticed from the means presented in Table 4.51 that female academic staff reported more desire for 35 institutional support items than male academic staff. Meanwhile, male academic staff reported more desire for 9 institutional support items than female academic staff.

T-test was used to determine whether these differences between male and female academic staff's rating of the desired support are statistically significant. Results of t-test indicate that there are no statistically significant differences between male (M=4.38) and female (M=4.46) academic staff in their rating of the desired institutional support (t value = 1.883, $p>0.05$). However, the results indicate that there are statistically significant differences in terms of their desired institutional support in two sections (supportive institutional practices

and pedagogical training). Meanwhile, the results indicate that there are no statistically significant differences in five sections (technical support, pedagogical support, technical training, training flexibility and institutional incentives) (Table 4.53).

Table 4.53. T-test Results (Differences Between Male and Female Academic Staff- Desired)

	Section	Gender	N	Mean	SD	df	t	Sig (2-tailed)
1	Supportive Institutional Practices	**Male**	336	4.33	0.55	516	3.179	0.002
		Female	182	4.48	0.44			
2	Technical support	**Male**	336	4.58	0.46	516	1.005	0.316
		Female	182	4.62	0.39			
3	Pedagogical support	**Male**	336	4.26	0.62	516	1.509	0.132
		Female	182	4.34	0.54			
4	Technical Training	**Male**	336	4.40	0.49	516	0.824	0.411
		Female	182	4.44	0.47			
5	Pedagogical Training	**Male**	336	4.40	0.58	516	3.003	0.003
		Female	182	4.54	0.50			
6	Training Flexibility	**Male**	336	4.45	0.56	516	0.08	0.936
		Female	182	4.46	0.57			
7	Institutional Incentives	**Male**	336	4.25	0.63	516	1.204	0.229
		Female	182	4.32	0.53			
	All Sections	**Male**	336	4.38	0.49	516	1.883	0.06
		Female	182	4.46	0.44			

Question 4.4: Are there statistically significant differences in academic staff's perceptions about desired institutional support according to their main purpose of using the VLE?

Table 4.54 and Figure 4.32 show means of forty-four items (Table 4.54) and seven sections (Table 4.55) according to responses of academic staff in five universities in Saudi Arabia. The tables classify academic staff into five categories according to their main purposes for using VLE. Those categories are administrative purposes only (Adm.) (n=121), teaching purposes only (Tech.) (n=48), administrative and teaching purposes (A&T) (n=174) and do not use VLE (DNU) (n=168).

Table 4.54. Academic Staff 's (According to Main Purpose) Assessment of Desired Institutional Support Items

No	Sec.	Item	Adm (M)	Adm (R)	Tech (M)	Tech (R)	A&T (M)	A&T (R)	DNU (M)	DNU (R)	All. M	All. R
1	Supportive Institutional Practices	Clarity of e-learning strategies.	4.55	13	4.44	32	4.61	15	4.13	31	4.42	25
2		Stability of e-learning strategies.	4.51	19	4.56	23	4.67	10	4.18	25	4.46	20
3		Clarifying e-learning importance in the university strategic vision.	4.34	33	4.17	38	4.48	31	3.94	39	4.23	37
4		Representing of academic staff in e-learning planning.	4.31	35	4.54	26	4.55	23	4.13	32	4.35	30
5		Encouraging institutional discussion during e-learning initiatives phases.	4.32	34	4.46	30	4.52	27	4.15	29	4.34	33
6		The provided support is keeping pace with e-learning programmes growth.	4.71	2	4.83	1	4.74	3	4.61	5	4.70	4
7		Enlightening AS about e-learning educational opportunities.	4.69	3	4.67	13	4.60	19	4.65	3	4.64	8
8		Identifying the barriers of involvement in e-learning.	4.69	4	4.65	15	4.72	5	4.60	7	4.67	6

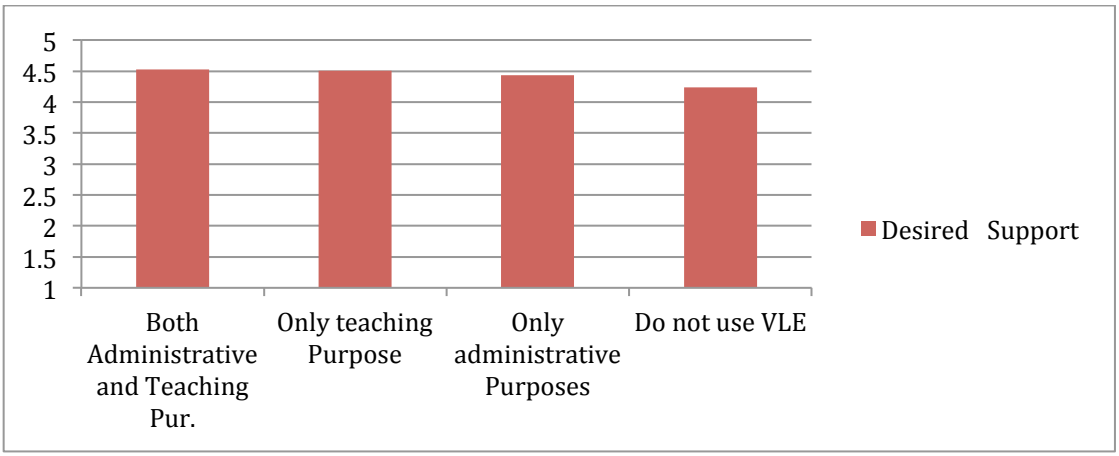
No	Sec.	Item	Adm (M)	Adm (R)	Tech (M)	Tech (R)	A&T (M)	A&T (R)	DNU (M)	DNU (R)	All. M	All. R
9		E-learning initiatives are driven by researches' findings.	4.48	22	4.65	16	4.55	24	4.36	17	4.48	17
10		Departments' role in encouraging AS to participate in e-learning.	3.66	44	3.67	43	3.87	44	3.14	43	3.55	44
11	Technical Support	Providing reliable technical infrastructure.	4.76	1	4.77	4	4.76	1	4.61	6	4.72	2
12		Offering user-friendly Virtual Learning Environments (VLE).	4.53	16	4.75	8	4.61	16	4.57	9	4.60	10
13		Ensuring continuous access to the VLE.	4.57	10	4.73	11	4.61	17	4.62	4	4.62	9
14		Running a 24X7 help desk to provide support.	4.64	7	4.77	5	4.68	9	4.76	2	4.70	3
15		Running units for educational multimedia production.	4.35	32	4.65	17	4.49	29	4.11	33	4.35	32
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs, etc).	4.54	14	4.75	9	4.66	11	4.51	11	4.60	11
17	Pedagogical Support	Facilitating cooperation with instructional designers.	4.14	40	4.06	41	4.40	38	3.54	42	4.01	42
18		Providing authoring tools to design e-learning courses.	4.36	30	4.38	34	4.48	32	4.18	26	4.34	34
19		Providing prepared pedagogical templates for e-learning course.	4.44	27	4.54	27	4.47	33	4.25	23	4.39	28
20		Running pedagogical consultations units.	4.45	26	4.44	33	4.63	13	4.17	28	4.41	26
21		Producing guides to increase courses' pedagogical quality.	4.49	20	4.56	24	4.45	35	4.35	19	4.44	23
22		Establishing online communities to share e-learning experiences.	4.11	41	4.08	40	4.25	41	3.99	37	4.12	40
23	Technical Training	Organising TP to enhance using ICT in teaching.	4.43	29	4.58	21	4.49	30	4.37	16	4.45	22
24		Organising TP to increase course management skills in the VLE.	4.47	24	4.65	18	4.45	36	4.44	14	4.48	18
25		Organising TP to increase course content management skills in the VLE.	4.52	17	4.63	20	4.55	25	4.49	12	4.54	14
26		Organising TP to increase my skills in using communication tools in the VLE.	4.28	37	4.38	35	4.56	21	3.96	38	4.27	35
27		Organising TP to increase students' progress tracking skills in the VLE.	4.30	36	4.38	36	4.54	26	3.92	40	4.25	36
28		Organising TP to increase assessments skills in the VLE.	4.44	28	4.56	25	4.70	8	4.35	20	4.50	16
29	Pedagogical Training	Organising TP to improve instructional design skills.	4.56	11	4.77	6	4.76	2	4.39	15	4.58	12
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	4.56	12	4.65	19	4.64	12	4.36	18	4.52	15
31		Organising TP to enhance the interaction through e-learning.	4.48	23	4.77	7	4.62	14	4.18	27	4.45	21
32		Organising TP to increase students' engagement through e-learning.	4.36	31	4.50	29	4.51	28	4.14	30	4.35	31
33		Organising TP to improve creating learner-centred learning strategies.	4.11	42	4.13	39	4.40	39	3.80	41	4.10	41
34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	4.66	6	4.75	10	4.74	4	4.59	8	4.68	5
35	TP Flexibility	Designing TP based on accurate need assessments.	4.61	8	4.81	3	4.72	6	4.57	10	4.65	7
36		TP diversity in terms of means (e.g. face-to-face and online).	4.21	39	4.06	42	4.36	40	4.04	36	4.19	38
37		TP diversity in terms of forms (e.g. one-to-one and team-based).	4.49	21	4.58	22	4.45	37	4.25	24	4.41	27
38		Organising TP in fixable dates.	4.61	9	4.73	12	4.61	18	4.49	13	4.58	13
39		TP diversity in terms of durations (short term-long term).	4.54	15	4.46	31	4.47	34	4.33	21	4.44	24
40	Institutional Incentives	Developing monetary compensation schemes.	4.52	18	4.67	14	4.56	22	4.32	22	4.47	19
41		Adjusting traditional workload credits.	4.68	5	4.83	2	4.72	7	4.79	1	4.75	1
42		Appreciating academic staff participation in e-learning.	4.26	38	4.27	37	4.17	42	4.10	34	4.18	39
43		Taking into account academic staff efforts in the promotion processes.	3.85	43	3.60	44	3.95	43	3.10	44	3.60	43
44		Arranging funded travel to attend e-learning events.	4.46	25	4.54	28	4.59	20	4.10	35	4.38	29
ALL			4.43		4.51		4.53		4.24		4.41	

Table 4.55. Academic Staff 's (According to Main Purpose) Assessment of Desired Institutional Support Section

Main Purpose	N	Mean and Rank									Std. Deviation
		SIP	TS	PS	TT	PT	TF	II	M	R	
Administrative purposes	121	4.43	4.56	4.33	4.41	4.45	4.49	4.35	4.43	3	0.42
		4	1	7	5	3	2	6			
Teaching purposes	48	4.46	4.74	4.34	4.53	4.59	4.53	4.38	4.51	2	0.34
		5	1	7	4	2	3	6			
Both administrative and teaching purposes.	174	4.53	4.64	4.45	4.55	4.61	4.52	4.40	4.53	1	0.38
		4	1	6	3	2	5	7			
Do not use the VLE	168	4.19	4.53	4.08	4.26	4.24	4.34	4.08	4.24	5	0.57
		5	1	6	3	4	2	7			
Other	7	4.17	4.81	4.12	4.36	4.19	4.49	4.00	4.30	4	0.55
		5	1	6	3	4	2	7			

Main Purpose	N	Mean and Rank									Std. Deviation
		SIP	TS	PS	TT	PT	TF	II	M	R	
ALL	518	4.38	4.60	4.29	4.42	4.45	4.45	4.28	4.41		0.47
		5	1	6	4	3	2	7			

Figure 4.32. Academic Staff 's (According to Main Purpose) Assessment of Desired Institutional Support



According to ranges mentioned in Table 4.33 and used to explain the desired institutional support means, academic staff in all categories, administrative and teaching purposes (A&T) (M= 4.53 SD= 0.38), teaching purposes only (Tech.) (M= 4.51 SD= 0.34), administrative purposes only (Adm.) (M= 4.43 SD= 0.42), other purposes (M= 4.30 SD= 0.55) and do not use VLE (DNU) (M= 4.24 SD= 0.57) rated institutional support as *highly desired*.

In general, academic staff in the four disciplines rated the desired institutional support sections in a convergent manner where the majority of seven sections were rated by academic staff as *highly desired*. Exceptions are found in the responses of academic staff who do not use VLEs who reported that pedagogical support (M= 4.08), institutional incentives (M= 4.08) and supportive institutional practices (M= 4.19) are *desired* support. Moreover, academic staff who use the VLE for other purposes reported that institutional incentives (M= 4.00), pedagogical support (M= 4.08), institutional incentives (M= 4.12), supportive institutional practices (M= 4.17) and pedagogical training (M= 4.19) are *desired* support.

This agreement in the academic staff's rating of institutional support sections is apparent in the sections' ranking. For example, technical support section ranked first in all five categories. Furthermore, training flexibility ranked second in three

categories. On the other hand, pedagogical support and institutional incentives ranked sixth and seventh in all five categories.

In terms of institutional support items, it can be noted from the means presented in Table 4.54 that academic staff who stated that they use VLEs only for teaching purposes reported more desire for 23 institutional support items than the other categories. Meanwhile, academic staff who stated that they use VLEs for both administrative and teaching purposes reported more desire for 18 institutional support items and academic staff who stated that they use VLEs only for administrative purposes reported more desire for three institutional support items than the other categories. On other hand, academic staff who stated that they do not use the VLEs reported less desire for 40 institutional support items than the other categories. Meanwhile, academic staff who stated that they use VLEs only for administrative purposes reported less desire for three institutional support items and finally, academic staff who stated that they use VLEs for both teaching and administrative purposes reported less desire for one institutional support item than the other categories.

To find out if these differences are statistically significant, a one-way ANOVA was used; the result indicates that there were statistically *significant differences* between the four different *purposes* for use in desired institutional support ($F=9.378$, $p<0.05$). Furthermore, there were statistically *significant differences* between all four different *purposes* in all seven sections of actual institutional support (Table 4.56).

Table 4.56. ONE-WAY ANOVA's Results (Differences Between Categories of Main Purpose - Desired

Section		Sum of Squares	df	Mean Square	F	Sig.
Supportive Institutional Practices	Between Groups	10.979	4	2.745	10.860	.000
	Within Groups	129.664	513	.253		
	Total	140.643	517			
Technical Support	Between Groups	2.384	4	.596	3.179	.013
	Within Groups	96.179	513	.187		
	Total	98.563	517			
Pedagogical Support	Between Groups	12.190	4	3.048	9.083	.000
	Within Groups	172.123	513	.336		
	Total	184.313	517			
Technical Training	Between Groups	7.868	4	1.967	8.869	.000
	Within Groups	113.784	513	.222		
	Total	121.652	517			
Pedagogical Training	Between Groups	13.120	4	3.280	11.431	.000
	Within Groups	147.205	513	.287		
	Total	160.325	517			
Training Flexibility	Between Groups	3.594	4	.899	2.881	.022
	Within Groups	160.030	513	.312		
	Total	163.625	517			
Institutional Incentives	Between Groups	10.894	4	2.723	8.036	.000

Section		Sum of Squares	df	Mean Square	F	Sig.
	Within Groups	173.848	513	.339		
	Total	184.742	517			
All Sections	Between Groups	7.913	4	1.978	9.378	.000
	Within Groups	108.215	513	.211		
	Total	116.128	517			

Scheffe's tests were used to determine the source of difference; Table 4.57 presents the results which indicate that there were statistically significant differences in desired institutional support between academic staff who use VLEs only for administrative purposes (M= 4.43) and those who do not use VLEs (M= 4.24), between academic staff who use VLEs only for teaching purposes (M= 4.51) and those who do not use VLEs (M= 4.24) and finally between academic staff who use VLEs for administrative and teaching purposes (M= 4.53) and those who do not use VLEs (M= 4.24).

Table 4.57. Scheffe's Results (Differences Between Categories of Main Purpose - Desired)

Section One

Mean	Admin. 4.43	Teach. 4.46	Both. 4.19	DNU 4.17
Admin. 4.43				
Teach. 4.46	1.00			
Both. 4.19	0.56	0.95		
DNU 4.17	0.00*	0.03*	0.00*	

Section two

Mean	Admin. 4.56	Teach. 4.74	Both. 4.64	DNU 4.53
Admin. 4.56				
Teach. 4.74	0.24			
Both. 4.64	0.73	0.73		
DNU 4.53	0.98	0.08	0.28	

Section three

Mean	Admin. 4.33	Teach. 4.34	Both. 4.45	DNU 4.08
Admin. 4.33				
Teach. 4.34	1.00			
Both. 4.45	0.59	0.89		
DNU 4.08	0.01*	0.10	0.00*	

Section four

Mean	Admin. 4.41	Teach. 4.53	Both. 4.55	DNU 4.26
Admin. 4.41				
Teach. 4.53	0.68			
Both. 4.55	0.18	1.00		
DNU 4.26	0.13	0.02*	0.00*	

Section five

Mean	Admin. 4.45	Teach. 4.59	Both. 4.61	DNU 4.24
Admin. 4.45				
Teach. 4.59	0.68			
Both. 4.61	0.20	1.00		
DNU 4.24	0.03*	0.00*	0.00*	

Section six

Mean	Admin. 4.49	Teach. 4.53	Both. 4.52	DNU 4.34
Admin. 4.49				
Teach. 4.53	1.00			
Both. 4.52	0.99	1.00		
DNU 4.34	0.25	0.35	0.05*	

Section seven

Mean	Admin. 4.35	Teach. 4.38	Both. 4.40	DNU 4.08
Admin. 4.35				
Teach. 4.38	1.00			
Both. 4.40	0.98	1.00		
DNU 4.08	0.00*	0.04*	0.00*	

All Section

Mean	Admin. 4.43	Teach. 4.51	Both. 4.53	DNU 4.24
Admin. 4.43				
Teach. 4.51	0.92			
Both. 4.53	0.52	1.00		
DNU 4.24	0.02*	0.01*	0.00*	

Question 4.5: Are there statistically significant differences in academic staff's perceptions about desired institutional support according to their attitudes toward e-learning?

The following tables and Figure 4.33 show means of forty-four items (Table 4.58) and seven sections (Table 4.59) according to responses of academic staff in five universities in Saudi Arabia. The tables classify academic staff into three categories according to their attitudes toward e-learning. Those categories are academic staff who would participate even with lack of sufficient institutional support (n= 124) (USE), academic staff who would participate only if sufficient institutional support were provided (n=304) (U.IF) and academic staff who would not participate even if sufficient institutional support were provided (n=90) (DNU).

Table 4.58. Academic Staff 's (According to Attitude) Assessment of Desired Institutional Support Items

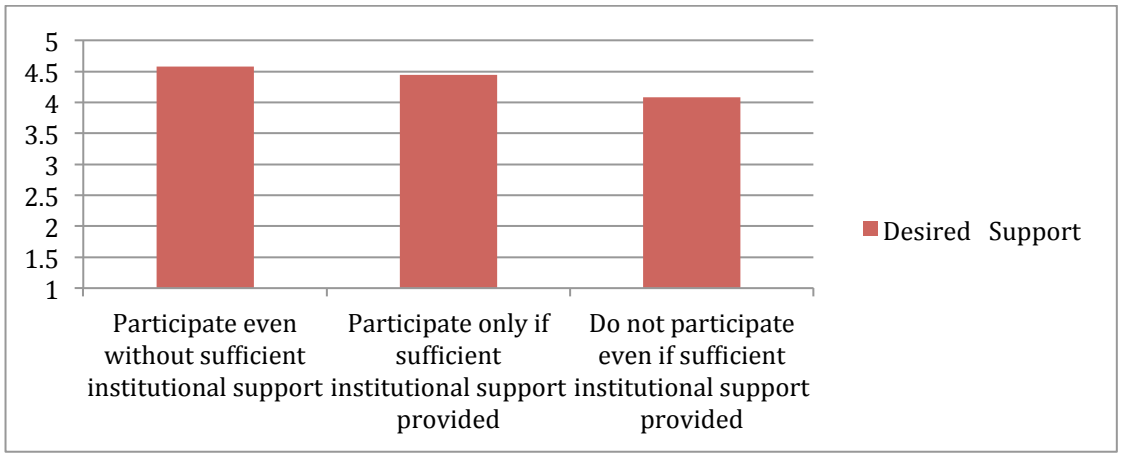
No	Sec.	Item	USE (M)	USE (R)	U.IF (M)	U.IF (R)	DNU (M)	DNU (R)	All. M	All. R
1	Supportive Institutional Practices	Clarity of e-learning strategies.	4.65	16	4.48	21	3.90	33	4.42	25
2		Stability of e-learning strategies.	4.70	9	4.53	19	3.89	34	4.46	20
3		Clarifying e-learning importance in the university strategic vision.	4.52	34	4.26	36	3.76	39	4.23	37
4		Representing of academic staff in e-learning planning.	4.60	19	4.34	34	4.04	25	4.35	30
5		Encouraging institutional discussion during e-learning initiatives phases.	4.52	35	4.36	33	4.06	24	4.34	33
6		The provided support is keeping pace with e-learning programmes growth.	4.77	1	4.73	2	4.51	8	4.70	4
7		Enlightening AS about e-learning educational opportunities.	4.60	20	4.68	8	4.56	5	4.64	8
8		Identifying the barriers of involvement in e-learning.	4.73	5	4.71	5	4.42	11	4.67	6
9		E-learning initiatives are driven by researches' findings.	4.60	21	4.53	20	4.12	20	4.48	17
10		Departments' role in encouraging AS to participate in e-learning.	4.02	44	3.55	44	2.92	43	3.55	44
11	Technical Support	Providing reliable technical infrastructure.	4.77	2	4.73	3	4.59	3	4.72	2
12		Offering user-friendly Virtual Learning Environments (VLE).	4.57	25	4.62	10	4.54	6	4.60	10
13		Ensuring continuous access to the VLE.	4.68	11	4.61	12	4.57	4	4.62	9
14		Running a 24X7 help desk to provide support.	4.66	15	4.72	4	4.72	1	4.70	3
15		Running units for educational multimedia production.	4.53	32	4.40	30	3.89	35	4.35	32
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs, etc).	4.67	13	4.61	13	4.47	9	4.60	11
17	Pedagogical Support	Facilitating cooperation with instructional designers.	4.49	38	4.05	42	3.21	42	4.01	42
18		Providing authoring tools to design e-learning courses.	4.53	33	4.38	32	3.94	30	4.34	34
19		Providing prepared pedagogical templates for e-learning course.	4.56	28	4.45	26	3.96	29	4.39	28
20		Running pedagogical consultations units.	4.62	17	4.46	23	3.97	28	4.41	26
21		Producing guides to increase courses' pedagogical quality.	4.55	30	4.46	24	4.20	17	4.44	23
22		Establishing online communities to share e-learning experiences.	4.26	42	4.12	40	3.94	31	4.12	40
23	Technical Training	Organising TP to enhance using ICT in teaching.	4.54	31	4.46	25	4.31	14	4.45	22
24		Organising TP to increase course management skills in the VLE.	4.56	29	4.48	22	4.37	13	4.48	18
25		Organising TP to increase course content management skills in the VLE.	4.59	23	4.55	15	4.43	10	4.54	14
26		Organising TP to increase my skills in using communication tools in the VLE.	4.57	26	4.29	35	3.79	38	4.27	35
27		Organising TP to increase students' progress tracking skills in the VLE.	4.60	22	4.26	37	3.76	40	4.25	36
28		Organising TP to increase assessments skills in the VLE.	4.68	12	4.54	16	4.14	19	4.50	16
29	Pedagogical Training	Organising TP to improve instructional design skills.	4.74	4	4.65	9	4.16	18	4.58	12
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	4.69	10	4.58	14	4.11	22	4.52	15
31		Organising TP to enhance the interaction through e-learning.	4.61	18	4.54	17	3.94	32	4.45	21
32		Organising TP to increase students' engagement through e-learning.	4.50	37	4.40	31	3.98	27	4.35	31
33		Organising TP to improve creating learner-centred learning strategies.	4.45	40	4.10	41	3.62	41	4.10	41
34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	4.73	6	4.69	6	4.54	7	4.68	5
35	TP Flexibility	Designing TP based on accurate need assessments.	4.72	7	4.69	7	4.41	12	4.65	7
36		TP diversity in terms of means (e.g. face-to-face and online).	4.48	39	4.13	39	4.01	26	4.19	38
37		TP diversity in terms of forms (e.g. one-to-one and team-based).	4.52	36	4.45	27	4.12	21	4.41	27

No	Sec.	Item	USE (M)	USE (R)	U.IF (M)	U.IF (R)	DNU (M)	DNU (R)	All. M	All. R
38		Organising TP in fixable dates.	4.72	8	4.62	11	4.26	15	4.58	13
39		TP diversity in terms of durations (short term-long term).	4.57	27	4.45	28	4.22	16	4.44	24
40	Institutional Incentives	Developing monetary compensation schemes.	4.59	24	4.54	18	4.09	23	4.47	19
41		Adjusting traditional workload credits.	4.75	3	4.76	1	4.70	2	4.75	1
42		Appreciating academic staff participation in e-learning.	4.35	41	4.20	38	3.84	36	4.18	39
43		Taking into account academic staff efforts in the promotion processes.	4.19	43	3.60	43	2.80	44	3.60	43
44		Arranging funded travel to attend e-learning events.	4.67	14	4.44	29	3.81	37	4.38	29
ALL			4.58		4.44		4.08		4.41	

Table 4.59. Academic Staff's (According to Attitude). Assessment of Desired Institutional Support Sections

Attitude	N	Mean and Rank									Std. Deviation
		SIP	TS	PS	TT	PT	TF	II	M	R	
Participate EVEN with lack of sufficient institutional support	124	4.57	4.65	4.50	4.59	4.62	4.60	4.51	4.58	1	0.39
		5	1	7	4	2	3	6			
Participate ONLY IF sufficient institutional support is provided.	304	4.42	4.62	4.32	4.43	4.49	4.47	4.31	4.44	2	0.41
		5	1	6	4	2	3	7			
Do not participate EVEN IF sufficient institutional support is provided.	90	4.02	4.46	3.87	4.13	4.06	4.20	3.85	4.08	3	0.62
		5	1	6	3	4	2	7			
ALL	518	4.38	4.60	4.29	4.42	4.45	4.45	4.28	4.41		0.47
		5	1	6	4	3	2	7			

Figure 4.33. Academic Staff's (According to Attitude) Assessment of Desired Institutional Support



According to ranges mentioned in Table 4.33 and used to explain the desired institutional support means, academic staff in two categories, academic staff who would participate even with lack of sufficient institutional support (M= 4.58 SD= 0.39) and academic staff who would participate only if sufficient institutional support were provided (M=4.44 SD=0.77) rated institutional support as *highly desired*. Meanwhile, academic staff who reported they would not participate even if sufficient institutional support were provided (M=4.08 SD=0.62) rated institutional support as *desired*.

In general, academic staff in the three categories rated the desired institutional support sections in a convergent manner with the majority of seven sections rated by academic staff as *highly desired*. Exceptions are found in the responses of those who stated they would not participate even if sufficient institutional support were provided, who reported that technical training (M= 4.13), pedagogical training (M= 4.06), supportive institutional practices (M= 4.02) and pedagogical support (M=3.87) are *desired*.

This agreement in the academic staff's rating of institutional support sections appears in the sections' ranking. For example, technical support ranked first in all three categories. Furthermore, training flexibility and pedagogical training ranked second and third in these categories. On the other hand, pedagogical support and institutional incentives ranked sixth and seventh in all three categories.

In terms of institutional support items, it can be noted from the means presented in Table 4.58 that academic staff who stated that they would participate in e-learning even with lack of sufficient institutional support reported more desire for 40 institutional support items than the other two categories. Meanwhile, respondents who stated that they would participate in e-learning only if sufficient institutional support were provided reported more desire for three institutional support items (Items 7, 12 and 41) and those who stated that they would not participate in e-learning even if sufficient institutional support were provided reported more desire for one institutional support item (Item 14) than the other two categories.

On other hand, academic staff who stated that they would not participate in e-learning even if sufficient institutional support were provided reported less desire for 43 institutional support items than the other two categories. Meanwhile, those who stated that they would participate in e-learning even with lack of sufficient institutional support reported less desire for one institutional support item (Item 14) than the other two categories.

To find out if these differences are statistically significant, a one-way ANOVA was used; the result indicates that there were significant differences between the three different attitudes categories in desired institutional support (F=33.631,

p<0.05). Furthermore, there were statistically significant differences between all three different attitudes in all seven sections of actual institutional support (Table 4.60).

Table 4.60. ONE-WAY ANOVA's Results (Differences Between Categories of Attitude - Desired

Section		Sum of Squares	df	Mean Square	F	Sig.
Supportive Institutional Practices	Between Groups	16.794	2	8.397	34.917	.000
	Within Groups	123.849	515	.240		
	Total	140.643	517			
Technical Support	Between Groups	2.037	2	1.019	5.435	.005
	Within Groups	96.525	515	.187		
	Total	98.563	517			
Pedagogical Support	Between Groups	21.736	2	10.868	34.427	.000
	Within Groups	162.577	515	.316		
	Total	184.313	517			
Technical Training	Between Groups	10.939	2	5.469	25.442	.000
	Within Groups	110.713	515	.215		
	Total	121.652	517			
Pedagogical Training	Between Groups	17.893	2	8.947	32.348	.000
	Within Groups	142.432	515	.277		
	Total	160.325	517			
Training Flexibility	Between Groups	8.424	2	4.212	13.976	.000
	Within Groups	155.201	515	.301		
	Total	163.625	517			
Institutional Incentives	Between Groups	23.511	2	11.755	37.549	.000
	Within Groups	161.231	515	.313		
	Total	184.742	517			
All Sections	Between Groups	13.415	2	6.707	33.631	.000
	Within Groups	102.714	515	.199		
	Total	116.128	517			

Scheffe's tests were used to determine the source of difference; Table 4.61 presents the results which indicate that there were statistically significant differences in desired institutional support between academic staff who participate in e-learning even with lack of institutional support (M= 4.58) and those who would participate in e-learning only if institutional support were provided (M= 4.44), between academic staff who participate in e-learning even with lack of institutional support (M= 4.58) and those who would not participate even if institutional support were provided (M= 4.08) and finally between academic staff who would participate in e-learning only if institutional support were provided (M= 4.44) and those who would not participate even if institutional support were provided (M= 4.08). The following table shows Scheffe's test results for the seven institutional support sections.

Table 4.61. Scheffe's Results (Differences Between Categories of Attitude - Desired)

Section One

Mean	P. Even 4.57	P. IF 4.42	Do not P. 4.02
P. Even 4.57			
P. IF 4.42	0.01*		
Do not P. 4.02	0.00*	0.00*	

Section two

Mean	P. Even 4.65	P. IF 4.62	Do not P. 4.46
P. Even 4.65			
P. IF 4.62	0.78		
Do not P. 4.46	0.01*	0.01*	

Section three

Mean	P. Even 4.50	P. IF 4.32	Do not P. 3.87
P. Even 4.50			
P. IF 4.32	0.01*		
Do not P. 3.87	0.00*	0.00*	

Section four

	P. Even 4.59	P. IF 4.49	Do not P. 4.06
P. Even 4.59			
P. IF 4.49	0.01*		
Do not P. 4.06	0.00*	0.00*	

Section five

Mean	P. Even 4.62	P. IF 4.49	Do not P. 4.06
P. Even 4.62			
P. IF 4.49	0.07		
Do not P. 4.06	0.00*	0.00*	

Section six

Mean	P. Even 4.60	P. IF 4.47	Do not P. 4.20
P. Even 4.60			
P. IF 4.47	0.07		
Do not P. 4.20	0.00*	0.00*	

Section seven

Mean	P. Even 4.51	P. IF 4.31	Do not P. 3.85
P. Even 4.51			
P. IF 4.31	0.00*		
Do not P. 3.85	0.00*	0.00*	

All Sections

	P. Even 4.58	P. IF 4.44	Do not P. 4.08
P. Even 4.58			
P. IF 4.44	0.01*		
Do not P. 4.08	0.00*	0.00*	

4.5. Differences between the actual and the desired institutional support

This section aims to present the results of the fifth question that investigate if there are significant differences between the actual and desired institutional support.

Question 5: Are there statistically significant differences between the actual and the desired institutional support (that which is and that which should be provided to motivate the adoption of VLEs in the perception of the academic staff members of Saudi universities? (Seven sub-questions)

As was clarified in Chapters One and Three, this question consists of seven sub-questions to examine whether differences between the actual and desired means for the seven institutional support sections are statistically significant.

Question 5.1 Are there statistically significant differences between the actual and desired supportive institutional practices in Saudi universities?

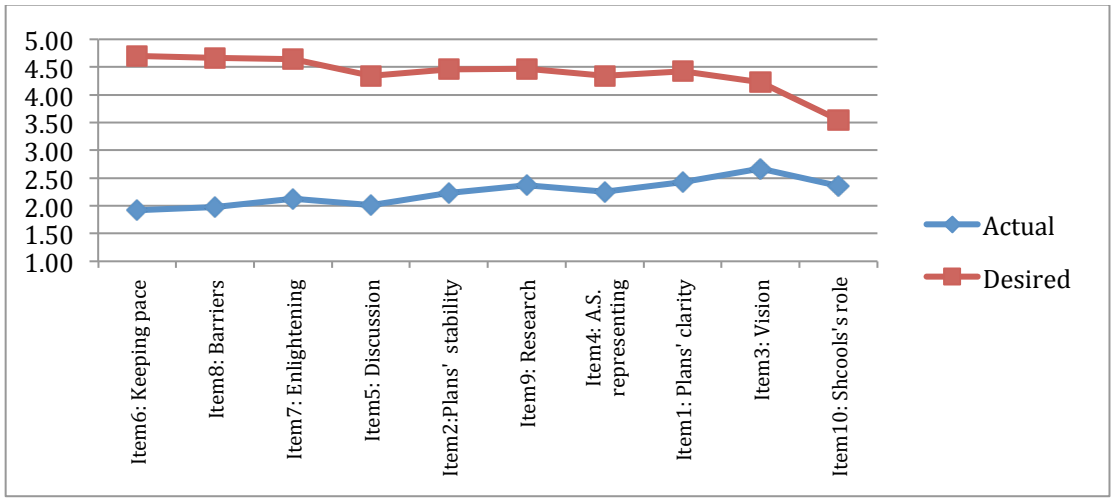
As can be seen in Table 4.62, t-test results indicate that the mean of desired supportive institutional practices (M= 4.38) is *significantly* higher than that of the actual supportive institutional practices (M= 2.24); $t(517)= 60.16$, $p<0.05$. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired institutional support for all ten section items. Figure 4.34 illustrates the gap between the means of the actual and desired supportive institutional practices. It can be seen that the widest gap reported by academic staff in this section is that between the actual and desired support for Item 6 "The provided support keeps pace with e-learning programs' growth" (M= 1.92 and M=4.70). Meanwhile, the smallest gap is indicated for Item 10 "Departments' role in encouraging AS to participate in e-learning" (M=2.36 and M=3.55).

Table 4.62. Differences Between The Actual And Desired Supportive Institutional Practices

ITEM			Degree of actual and desired institutional support					Mean	t	Sig
			5	4	3	2	1			
1	Clarity of e-learning strategies.	Actual %	4.1	16	17.2	44	18.7	2.43	39.32	0.00
		Desired %	56.9	29.7	11.8	1.5	0	4.42		
2	Stability of e-learning strategies.	Actual %	1.2	9.3	19.3	52.3	18	2.23	48.98	0.00
		Desired %	62.2	25.1	9.8	2.1	0.8	4.46		

ITEM			Degree of actual and desired institutional support					Mean	t	Sig
			5	4	3	2	1			
3	Clarifying e-learning importance in the university strategic vision.	Actual %	6	17.4	26.8	37.3	12.5	2.67	36.36	0.00
		Desired %	39.2	46.3	13.1	1.4	0	4.23		
4	Representing of academic staff in e-learning planning.	Actual %	1.9	11.4	16.2	51.4	19.1	2.26	46.37	0.00
		Desired %	51.7	33.6	13.1	1	0.6	4.35		
5	Encouraging institutional discussion during e-learning initiatives phases.	Actual %	1.2	7.5	18	38.4	34.9	2.02	49.18	0.00
		Desired %	48.5	39.2	11	1	0.4	4.34		
6	The provided support is keeping pace with e-learning programmes growth.	Actual %	2.1	7.5	12.9	34.7	42.7	1.92	54.29	0.00
		Desired %	75.7	19.7	3.9	0.8	0	4.70		
7	Enlightening AS about e-learning educational opportunities.	Actual %	1.9	11.6	12.9	44.4	29.2	2.13	46.99	0.00
		Desired %	69.9	25.5	3.9	0.6	0.2	4.64		
8	Identifying the barriers of involvement in e-learning.	Actual %	1.9	8.3	6.9	51.4	31.5	1.98	56.81	0.00
		Desired %	73	21.4	4.8	0.8	0	4.67		
9	E-learning initiatives are driven by researches' findings.	Actual %	0.8	9.3	41.9	22.8	25.3	2.37	40.67	0.00
		Desired %	61.8	24.9	12.5	0.8	0	4.48		
10	Departments' role in encouraging AS to participate in e-learning.	Actual %	3.3	15.3	22.2	32.4	26.8	2.36	25.80	0.00
		Desired %	14.9	39.2	32.8	12.4	0.8	3.55		
		Actual supportive institutional practices						2.24	60.16	0.00
		Desired supportive institutional practices						4.38		

Figure 4.34. Differences Between The Actual And Desired Supportive Institutional Practices



Question 5.2. Are there statistically significant differences between the actual and desired technical support in Saudi universities?

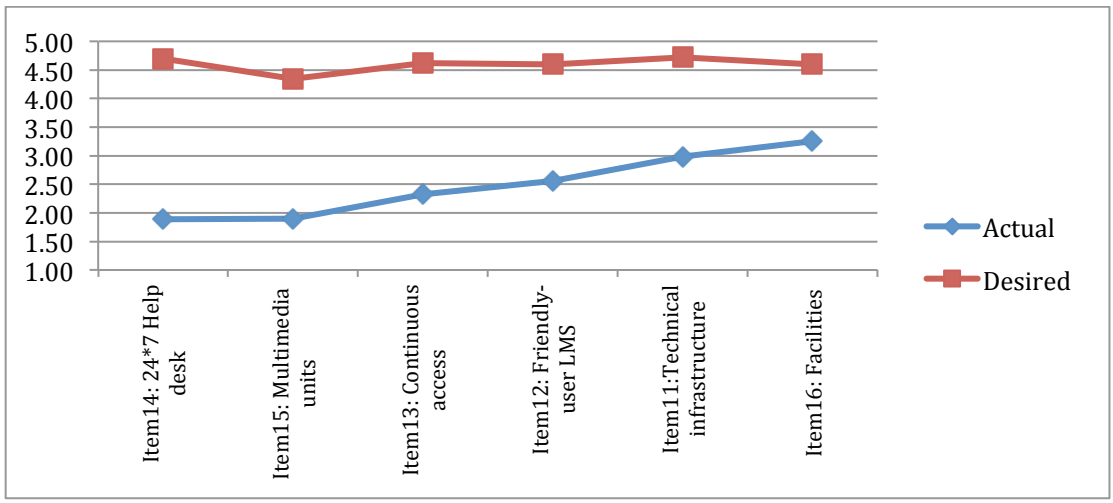
As can be seen in Table 4.63, t-test results indicate that the mean for desired technical support (M= 4.60) is *significantly* higher than that for the actual technical support (M= 2.48); t(517)= 49.32, p<0.05. Furthermore, t-test results

indicate statistically *significant* differences between the actual and desired institutional support for all six items. Figure 4.35 illustrates the gap between the means for the actual and desired technical support section items. It can be seen that the widest gap reported by academic staff in this section is that between the actual and desired support for Item 14, "Running a 24/7 help desk to provide support" (M= 1.89 and M=4.70). Meanwhile, the smallest is the gap indicated for Item 16", Offering facilities to participate in e-learning" (M=3.26 and M=4.60).

Table 4.63. Differences Between The Actual And Desired Technical Support

ITEM			Degree of actual and desired institutional support					Mean	t	sig
			5	4	3	2	1			
11	Providing reliable technical infrastructure.	Actual %	9.8	26.4	25.3	28.8	9.7	2.98	32.78	0.00
		Desired %	74.7	22.4	2.7	0.2	0	4.72		
12	Offering user-friendly Virtual Learning Environments (VLE).	Actual %	7.7	10.6	29.5	34	18.1	2.56	37.65	0.00
		Desired %	63.9	31.9	4.2	0	0	4.60		
13	Ensuring continuous access to the VLE.	Actual %	4.1	11.2	24.1	34.2	26.4	2.32	42.95	0.00
		Desired %	64.9	32.2	2.9	0	0	4.62		
14	Running a 24X7 help desk to provide support.	Actual %	2.3	6.4	8.1	44.2	39	1.89	58.28	0.00
		Desired %	71.8	26.8	1.4	0	0	4.70		
15	Running units for educational multimedia production.	Actual %	1	8.5	14.3	32	44.2	1.90	49.20	0.00
		Desired %	51.5	33.2	13.5	1.7	0	4.35		
16	Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs, etc).	Actual %	14.5	34.9	19.7	23.6	7.3	3.26	24.03	0.00
		Desired %	64.7	31.3	3.1	1	0	4.60		
		Actual technical support						2.48	49.32	0.00
		Desired technical support						4.60		

Figure 4.35. Differences Between The Actual And Desired Technical Support



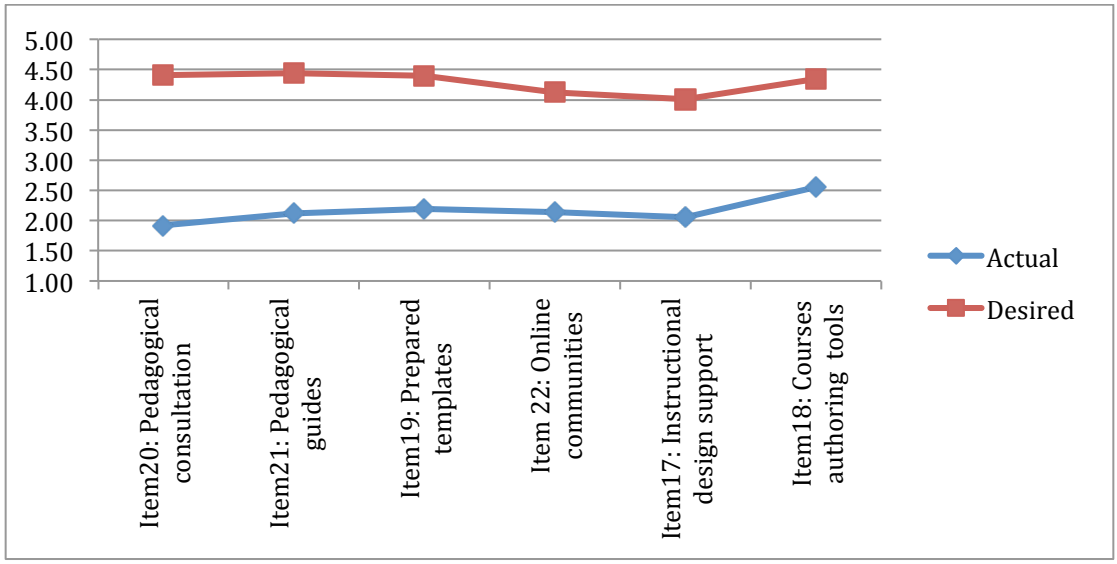
Question 5.3. Are there statistically significant differences between the actual and desired pedagogical support in Saudi universities?

As can be seen in Table 4.64, t-test results indicate that the mean of the desired pedagogical support (M= 4.29) is *significantly* higher than that of the actual pedagogical support (M= 2.16); t(517)= 57.45, p<0.05. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all six of the section's items. Figure 4.36 illustrates the gap between the means of the actual and desired pedagogical support section's items. It can be seen that the widest gap reported by academic staff in this section is that between the actual and desired support for Item 20, "Running pedagogical consultation units" (M= 1.92 and M=4.41). Meanwhile, the smallest gap indicated is for Item 18, "Providing authoring tools to design e-learning courses" (M=2.55 and M=4.34).

Table 4.64. Differences Between The Actual And Desired Pedagogical Support

ITEM			Degree of actual and desired institutional support					Mean	T	sig
			5	4	3	2	1			
17	**Facilitating cooperation with instructional designers.**	**Actual %**	0.8	5.6	19.1	47.3	27.2	2.05	56.93	0.00
		Desired %	27.8	52.7	12.2	7.3	0	4.01		
18	**Providing authoring tools to design e-learning courses.**	**Actual %**	2.1	23.6	13.3	49.6	11.4	2.55	35.15	0.00
		Desired %	46.7	42.3	9.5	1.5	0	4.34		
19	**Providing prepared pedagogical templates for e-learning course.**	**Actual %**	1.4	9.7	27.8	29.7	31.5	2.20	43.04	0.00
		Desired %	52.9	35.3	10	1.7	0	4.39		
20	**Running pedagogical consultations units.**	**Actual %**	1.4	6.6	15.4	36.1	40.5	1.92	56.48	0.00
		Desired %	53.1	35.7	10.6	0.6	0	4.41		
21	**Producing guides to increase courses' pedagogical quality.**	**Actual %**	1.4	6.6	21	44.4	26.6	2.12	47.17	0.00
		Desired %	56.6	32.2	9.7	1.5	0	4.44		
22	**Establishing online communities to share e-learning experiences.**	**Actual %**	1.5	7.5	21.8	41.5	27.6	2.14	39.43	0.00
		Desired %	34	45	20.1	1	0	4.12		
		Actual pedagogical support					2.16	57.45	0.00	
		Desired pedagogical support					4.29			

Figure 4.36. Differences Between The Actual And Desired Pedagogical Support



Question 5.4. Are there statistically significant differences between the actual and desired technical training in Saudi universities?

As can be seen in Table 4.65, t-test results indicate that the mean of desired technical training (M= 4.42) is significantly higher than that of the actual technical training (M= 2.59); t(517)= 45.58, p<0.05. Furthermore, t-test results indicate statistically significant differences between the actual and desired support for all six of the section's items.

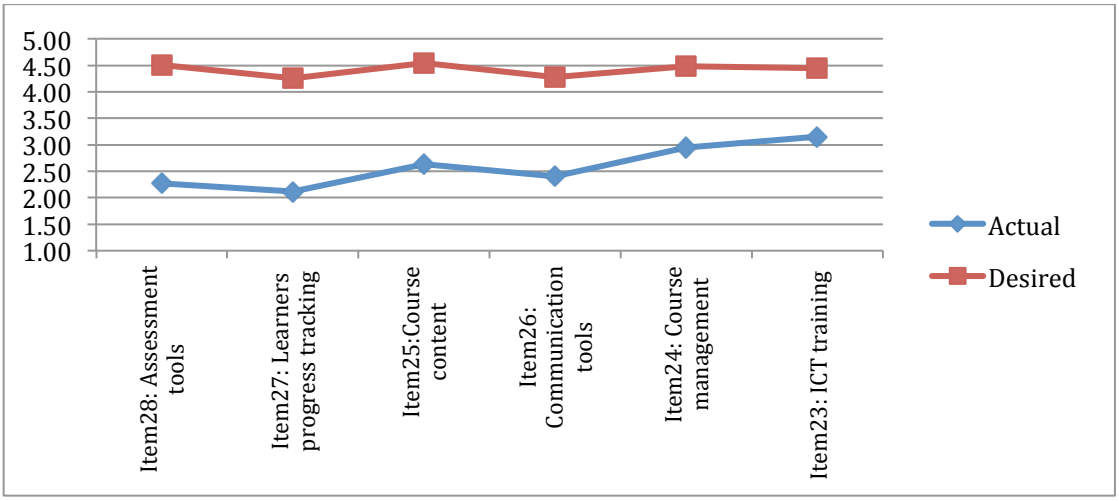
Figure 4.37 illustrates the gap between the means of the actual and desired technical training section's items. It can be seen that the widest gap reported by academic staff in this section is that between the actual and desired support for Item 28 "Organising TPs to increase assessments skills in the VLE" (M= 2.27 and M=4.50). Meanwhile, the smallest gap is indicated for Item 23, "Organising TPs to enhance use of ICT in teaching" (M=3.15 and M=4.45).

Table 4.65. Differences Between The Actual And Desired Technical Training

ITEM			Degree of actual and desired institutional support					Mean	t	Sig*
			5	4	3	2	1			
23	Organising TP to enhance using ICT in teaching.	Actual %	12.9	17.6	49.4	11.8	8.3	3.15	25.04	0.00
		Desired %	58.9	29	10.6	1.5	0	4.45		
24	Organising TP to increase course management skills in the VLE.	Actual %	5.2	27.4	36.1	19.3	12	2.95	26.11	0.00
		Desired	60.6	27	11.8	0.6	0	4.48		

		%								
25	**Organising TP to increase course content management skills in the VLE.**	**Actual %**	3.1	19.3	31.3	30.1	16.2	2.63	32.17	0.00
		Desired %	63.5	27.6	7.9	1	0	4.54		
26	**Organising TP to increase my skills in using communication tools in the VLE.**	**Actual %**	1.7	16.6	20.5	42.7	18.5	2.40	54.66	0.00
		Desired %	36.3	55.2	7.9	0.6	0	4.27		
27	**Organising TP to increase students' progress tracking skills in the VLE.**	**Actual %**	2.3	11.2	22.8	23.4	40.3	2.12	53.63	0.00
		Desired %	35.9	54.4	8.9	0.8	0	4.25		
28	**Organising TP to increase assessments skills in the VLE.**	**Actual %**	1.4	11.4	24.7	37.8	24.7	2.27	54.93	0.00
		Desired %	56.2	38	5.6	0.2	0	4.50		
		Actual technical training						2.59	45.58	0.00
		Desired technical training						4.42		

Figure 4.37. Differences Between The Actual And Desired Technical Training



Question 5.5. Are there statistically significant differences between the actual and desired pedagogical training in Saudi universities?

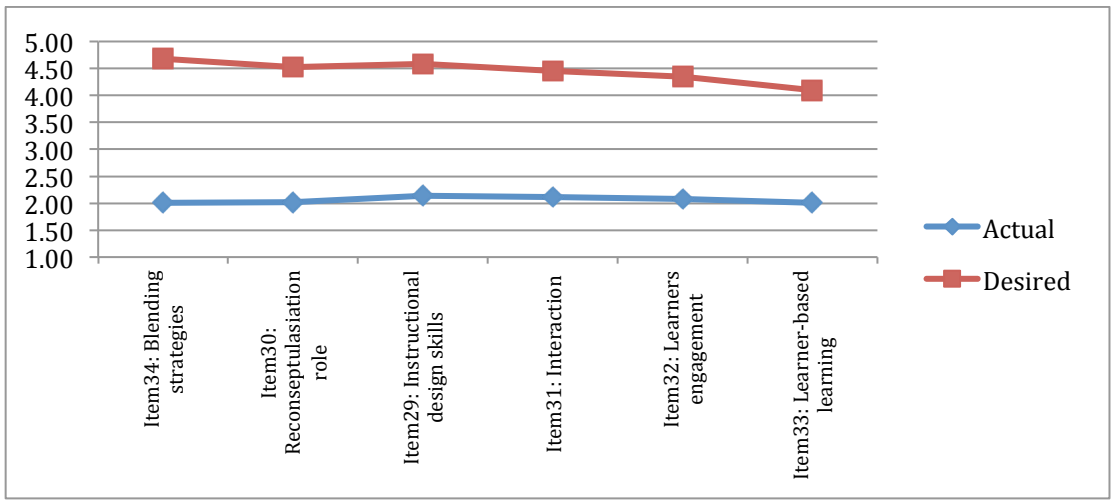
As can be seen in Table 4.66, t-test results indicate that the mean of desired pedagogical training (M= 4.45) is *significantly* higher than that of the actual pedagogical training (M= 2.06); t(517)= 57.58, p<0.05. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all six of the section's items. Figure 4.38 illustrates the gap between the means of the actual and desired pedagogical training section's items. It can be seen that the widest gap reported by academic staff in this section is that between the actual and desired support for Item 34, "Organising TPs to guide to the best practices in blending face-to-face teaching and e-

learning" (M= 2.00 and M=4.68). Meanwhile, the smallest gap is indicated for Item 33, "Organising TPs to improve creating learner-centred learning strategies" (M=2.01 and M=4.10).

Table 4.66. Differences Between The Actual And Desired Pedagogical Training

ITEM			Degree of actual and desired institutional support					Mean	t	Sig
			5	4	3	2	1			
29	Organising TP to improve instructional design skills.	Actual %	1.9	8.9	20.5	38	30.7	2.13	53.13	0.00
		Desired %	66.2	26.3	7.3	0.2	0	4.58		
30	Organising TP to assist AS reconceptualising my role in e-learning environments.	Actual %	1.7	9.5	17.8	31.1	40	2.02	49.28	0.00
		Desired %	62.4	28	9.3	0.4	0	4.52		
31	Organising TP to enhance the interaction through e-learning.	Actual %	1.9	8.9	18.7	39.4	31.1	2.11	50.38	0.00
		Desired %	59.1	27.6	12.9	0.4	0	4.45		
32	Organising TP to increase students' engagement through e-learning.	Actual %	1.4	6.9	21.2	39	31.5	2.08	49.57	0.00
		Desired %	45.6	43.8	10.6	0	0	4.35		
33	Organising TP to improve creating learner-centred learning strategies.	Actual %	1.5	5.8	23.9	29.5	39.2	2.01	46.96	0.00
		Desired %	34.4	45.9	14.9	4.8	0	4.10		
34	Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	Actual %	1.7	6.8	21.4	30.3	39.8	2.00	50.15	0.00
		Desired %	75.1	18	6.4	0.6	0	4.68		
		Actual pedagogical training						2.06	57.58	0.00
		Desired pedagogical training						4.45		

Figure 4.38. Differences Between The Actual And Desired Pedagogical Training



Question 5.6: Are there statistically significant differences between the actual and desired training programs' flexibility in Saudi universities?

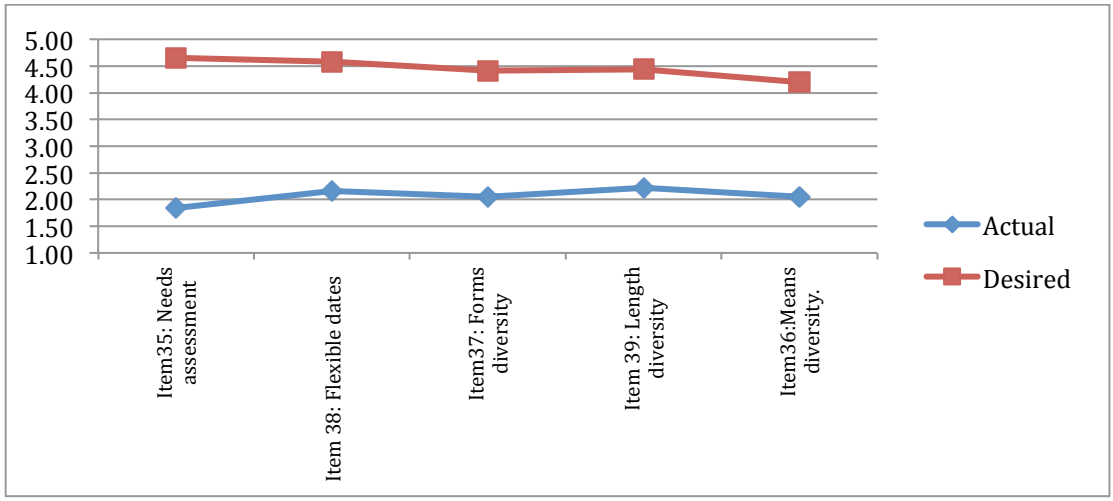
As can be seen in Table 4.67, t-test results indicate that the mean of desired training flexibility (M= 4.45) is significantly higher than that of the actual training flexibility (M= 2.07); t(517)= 54.19, p<0.05. Furthermore, t-test results indicate statistically significant differences between the actual and desired support for all five of the section's items.

Figure 4.39 illustrates the gap between the mean of the actual and desired training flexibility section's items. It can be seen that the widest gap reported by academic staff in this section is that between the actual and desired support for Item 35, "Designing TP based on accurate needs assessments" (M= 1.84 and M=4.65). Meanwhile, the smallest gap is indicated for item 36, "TP diversity in terms of means, e.g. face-to-face and online", (M=2.05 and M=4.19).

Table 4.67. Differences Between The Actual And Desired Flexibility Of Training Programmes

ITEM			Degree of actual and desired institutional support					Mean	t	Sig
			5	4	3	2	1			
35	Designing TP based on accurate need assessments.	Actual %	1.4	6.6	15.6	27.8	48.6	1.84	55.66	0.00
		Desired %	72.6	21.2	5.2	0.6	0.4	4.65		
36	TP diversity in terms of means (e.g. face-to-face and online).	Actual %	1.7	11.4	17.4	29.5	40	2.05	42.70	0.00
		Desired %	33.4	55.8	7.5	3.3	0	4.19		
37	TP diversity in terms of forms (e.g. one-to-one and team-based).	Actual %	1.7	10.4	16.8	33.8	37.3	2.06	43.68	0.00
		Desired %	52.7	37.1	9.1	1	0.2	4.41		
38	Organising TP in fixable dates.	Actual %	2.5	11	16.8	39.8	29.9	2.16	47.52	0.00
		Desired %	69.9	18.9	10.4	0.8	0	4.58		
39	TP diversity in terms of durations (short term-long term).	Actual %	1.9	9.5	17.4	51.2	20.1	2.22	46.31	0.00
		Desired %	57.3	30.5	11	1	0.2	4.44		
		Actual flexibility of training programmes						2.07	54.19	0.00
		Desired flexibility of training programmes						4.45		

Figure 4.39. Differences Between The Actual And Desired Flexibility Of Training Programmes



Question 5.7: Are there statistically significant differences between the actual and desired institutional incentives in Saudi universities?

As can be seen in Table 4.68 t-test results indicate that the means of desired institutional incentives (M= 4.28) is significantly higher than those of actual institutional incentives (M= 2.42); t(517)= 48.61, p<0.05. Furthermore, t-test results indicate statistically significant differences between the actual and desired support for all five of the section's items.

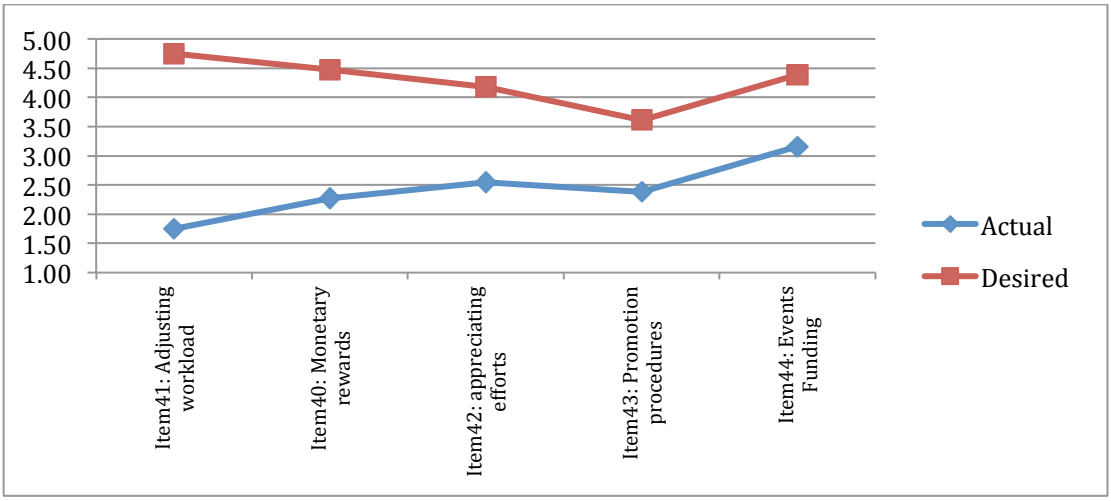
Figure 4.40 illustrates the gap between the means of the actual and desired institutional incentives section's items. It can be seen that the widest gap reported by academic staff in this section is that between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 1.75 and M=4.75). Meanwhile, the smallest gap is indicated for item 44, "Arranging funded travel to attend e-learning events" (M=3.16 and M=4.38).

Table 4.68. Differences Between The Actual And Desired Institutional Incentives

ITEM			Degree of actual and desired institutional support					Mean	t	Sig
			5	4	3	2	1			
40	**Developing monetary compensation schemes.**	Actual %	3.3	10.2	26.3	30.7	29.5	2.27	38.63	0.00
		Desired %	62.5	24.1	11.8	1.4	0.2	4.47		
41	**Adjusting traditional workload credits.**	Actual %	1	4.1	10	38.8	46.1	1.75	60.26	0.00
		Desired %	79.5	17.6	1.4	1	0.6	4.75		
42	**Appreciating academic staff participation in e-**	Actual %	2.1	13.3	37.3	31.9	15.4	2.55	30.21	0.00

ITEM			Degree of actual and desired institutional support					Mean	t	Sig
			5	4	3	2	1			
	learning.	Desired %	41.7	35.7	21.2	1.2	0.2	4.18		
43	**Taking into account academic staff efforts in the promotion processes.**	Actual %	2.5	9.3	28	44.4	15.8	2.38	25.57	0.00
		Desired %	19.9	39	26.4	11	3.7	3.60		
44	**Arranging funded travel to attend e-learning events.**	Actual %	8.1	25.1	49.2	10.2	7.3	3.16	27.30	0.00
		Desired %	49.8	39.4	10.4	0.2	0.2	4.38		
		Actual institutional incentives						2.42	48.61	0.00
		Desired institutional incentives						4.28		

Figure 4.40. Differences Between The Actual And Desired Institutional Incentives



5.8. Differences between the actual and desired institutional support (all items and sections)

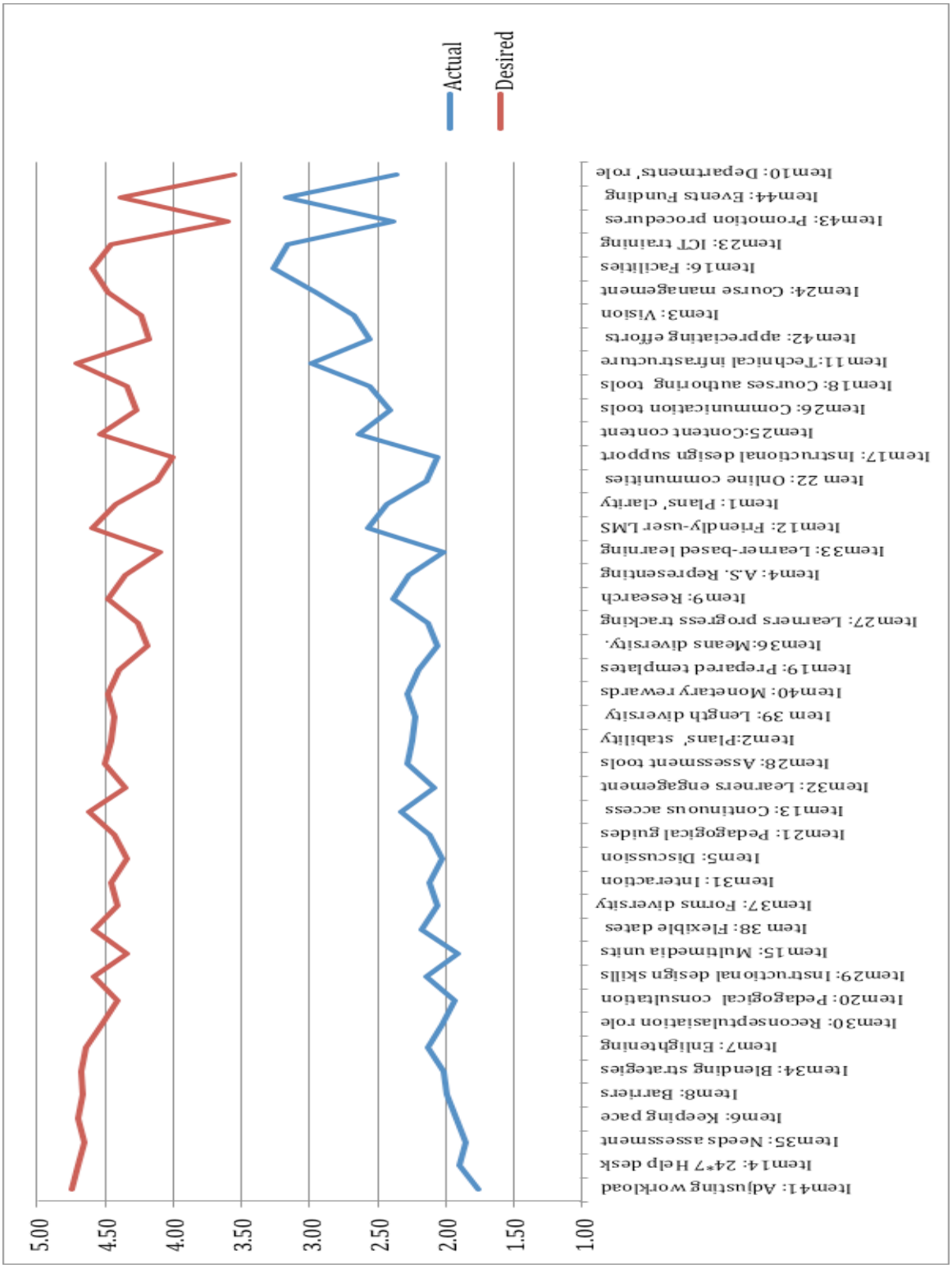
As can be seen in Table 4.69, t-test results indicate that the mean of desired institutional support (M= 4.41) is *significantly* higher than that of the actual institutional support mean (M= 2.29); t(517)= 61.37, p<0.05. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all forty-four items.

Table 4.69. Differences Between The Actual And Desired Institutional Support

		Mean	t	Sig
Institutional Support	**Actual**	2.29	61.37	0.00*
	Desired	4.41		

Figure 4.41 illustrates the gap between the means of the actual and desired institutional support items. It can be seen that the five widest gaps reported by academic staff between the actual and desired support were: Item 41, "Adjusting traditional workload credits" (M= 1.75 and M=4.75); Item 14, "Running a 24/7 help desk to provide support" (M= 1.89 and M=4.70); Item 35, "Designing TPs based on accurate need assessments" (M= 1.84 and M=4.65); Item 6 "The provided support keeps pace with e-learning programs' growth" (M= 1.92 and M=4.70); and Item 8, "Identifying the barriers to becoming involved in e-learning" (M= 1.98 and M=4.67). Meanwhile, the five smallest gaps indicated were: Item 10, "Departments' role in encouraging AS to participate in e-learning" (M=2.36 and M=3.55); Item 44, "Arranging funded travel to attend e-learning events" (M= 3.16 and M=4.38); Item 43, "Taking into account academic staff's efforts in the promotion process" (M= 2.38 and M=3.60); Item 23, "Organising TPs to enhance the use of ICT in teaching" (M= 3.15 and M=4.45); and Item 16, "Offering facilities to participate in e-learning, *e.g*. laptops, tablets, computers labs, etc." (M= 3.26 and M=4.60).

Figure 4.41. Differences between actual & desired institutional support

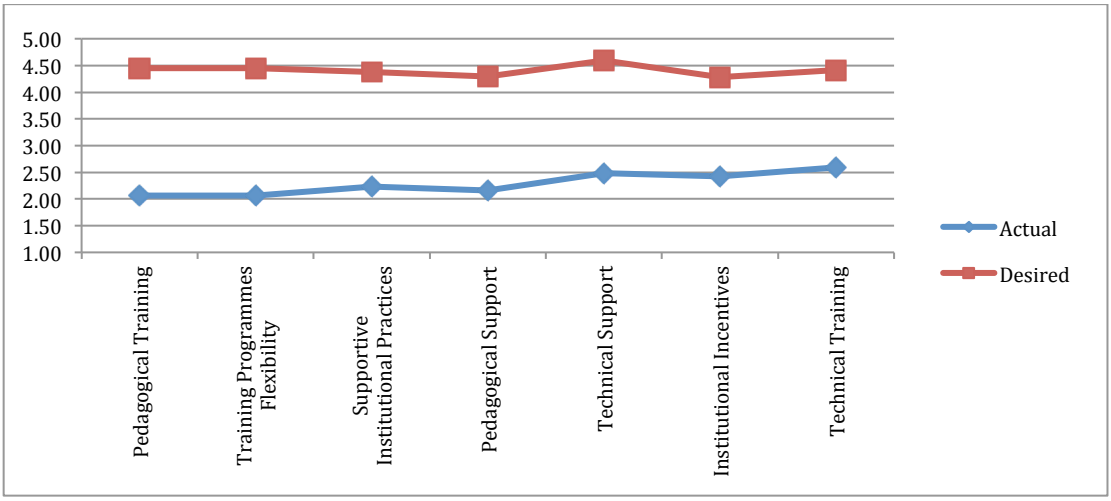


In terms of gaps between actual and desired institutional support sections, academic staff reported the widest gap in section five, "pedagogical training" (M= 2.06 and M=4.45). On the other hand, they reported the smallest gap in section four, "technical training" (M= 2.59 and M=4.42). See Table 4.70 and Figure 4.42.

Table 4.70. Differences Between The Actual And Desired Institutional Support Sections

No	Section		M	t	sig
1	Supportive Institutional Practices	A	2.24	60.16	0.00
		D	4.38		
2	Technical Support	A	2.48	49.32	0.00
		D	4.60		
3	Pedagogical Support	A	2.16	57.45	0.00
		D	4.29		
4	Technical Training	A	2.59	45.58	0.00
		D	4.42		
5	Pedagogical Training	A	2.06	57.58	0.00
		D	4.45		
6	Training Programmes Flexibility	A	2.07	54.19	0.00
		D	4.45		
7	Institutional Incentives	A	2.42	48.61	0.00
		D	4.28		
All		A	2.29	61.37	0.00
		D	4.41		

Figure 4.42. Differences Between The Actual And Desired Institutional Support Sections



4.6. Differences between the actual and the desired institutional support for each sub-variable

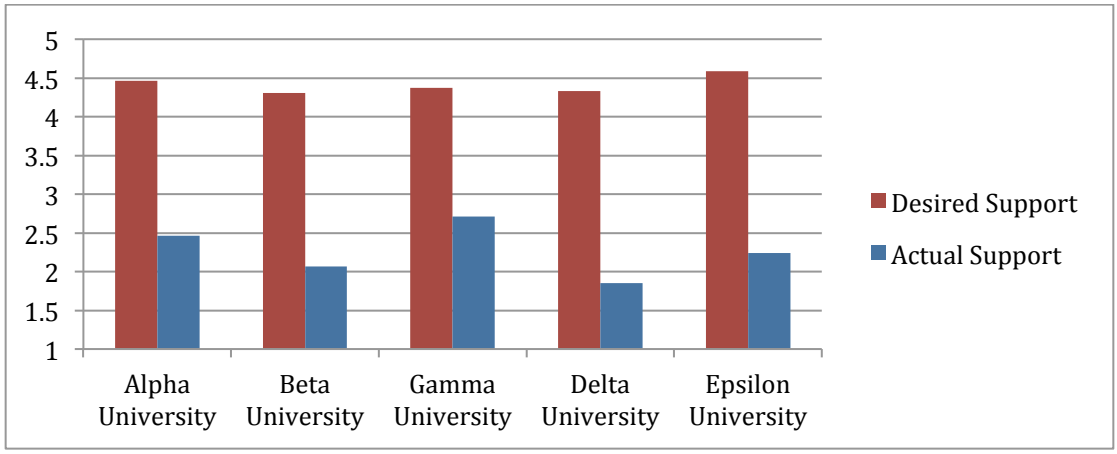
This section aims to present the results of the sixth question that investigate if there are statistically significant differences between the actual and desired institutional support for each sub-variable.

Question 6: Are there statistically significant differences between the actual and desired institutional support for each sub-variable: university, faculty, gender, purpose of using the VLE and attitude towards e-learning? (Five sub-questions)

6.1. Are there statistically significant differences between the actual and desired institutional support in each university?

The following sections present the means and examine differences between the actual and desired institutional support for each university of five universities in Saudi Arabia. These are Alpha, Beta, Gamma, Delta and Epsilon University (Figure 4.43).

Figure 4.43. Differences Between The Actual And Desired Institutional Support In the Four Universities.



6.1.1 Differences between the actual and desired institutional support in Alpha University

Table 4.71. Differences Between The Actual And Desired Institutional Support In Alpha University

No	Sec.	Item		M	t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	2.50	24.28	0.00
			D	4.50		
2		Stability of e-learning strategies.	A	2.36	28.25	0.00
			D	4.66		
3		Clarifying e-learning importance in the university strategic vision.	A	2.90	20.06	0.00
			D	4.31		
4		Representing of academic staff in e-learning planning.	A	2.28	27.61	0.00
			D	4.41		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	2.09	29.12	0.00
			D	4.43		
6		The provided support is keeping pace with e-learning programmes growth.	A	2.09	29.63	0.00
			D	4.84		
7		Enlightening AS about e-learning educational opportunities.	A	2.24	30.29	0.00
			D	4.81		
8		Identifying the barriers of involvement in e-learning.	A	2.08	34.61	0.00
			D	4.77		

No	Sec.	Item			t	sig
23	Technical Training	Organising TP to enhance using ICT in teaching.	A	3.37	11.89	0.00
			D	4.47		
24		Organising TP to increase course management skills in the VLE.	A	3.24	12.30	0.00
			D	4.54		
25		Organising TP to increase course content management skills in the VLE.	A	2.84	15.86	0.00
			D	4.57		
26		Organising TP to increase my skills in using communication tools in the VLE.	A	2.55	33.12	0.00
			D	4.31		
27		Organising TP to increase students' progress tracking skills in the VLE.	A	2.34	27.86	0.00
			D	4.34		
28		Organising TP to increase assessments skills in the VLE.	A	2.44	29.44	0.00
			D	4.58		
29	Pedagogical Training	Organising TP to improve instructional design skills.	A	2.49	28.10	0.00
			D	4.59		
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	2.21	26.63	0.00
			D	4.63		

9		E-learning initiatives are driven by researches' findings.	A	2.60	22.09	0.00	31		Organising TP to enhance the interaction through e-learning.	A	2.33	27.62	0.00
			D	4.47						D	4.41		
10		Departments' role in encouraging AS to participate in e-learning.	A	2.58	11.81	0.00	32		Organising TP to increase students' engagement through e-learning.	A	2.24	25.85	0.00
			D	3.54						D	4.35		
11	Technical Support	Providing reliable technical infrastructure.	A	3.22	15.78	0.00	33		Organising TP to improve creating learner-centred learning strategies.	A	2.21	24.69	0.00
			D	4.74						D	4.19		
12		Offering user-friendly Virtual Learning Environments (VLE).	A	2.89	19.01	0.00	34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	2.16	27.22	0.00
			D	4.69						D	4.76		
13		Ensuring continuous access to the VLE.	A	2.68	19.15	0.00	35	TP Flexibility	Designing TP based on accurate need assessments.	A	1.95	30.63	0.00
			D	4.61						D	4.73		
14		Running a 24X7 help desk to provide support.	A	2.08	27.74	0.00	36		TP diversity in terms of means (e.g. face-to-face and online).	A	2.19	22.11	0.00
			D	4.66						D	4.22		
15		Running units for educational multimedia production.	A	2.01	25.61	0.00	37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	2.20	22.59	0.00
			D	4.36						D	4.34		
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs, etc).	A	3.66	8.69	0.00	38		Organising TP in fixable dates.	A	2.45	25.86	0.00
			D	4.55						D	4.71		
17	Pedagogical Support	Facilitating cooperation with instructional designers.	A	2.22	32.80	0.00	39		TP diversity in terms of durations (short term-long term).	A	2.36	23.81	0.00
			D	4.15						D	4.53		
18		Providing authoring tools to design e-learning courses.	A	2.71	16.55	0.00	40	Institutional Incentives	Developing monetary compensation schemes.	A	2.44	20.47	0.00
			D	4.41						D	4.48		
19		Providing prepared pedagogical templates for e-learning course.	A	2.42	25.02	0.00	41		Adjusting traditional workload credits.	A	1.84	31.05	0.00
			D	4.46						D	4.83		
20		Running pedagogical consultations units.	A	2.11	27.67	0.00	42		Appreciating academic staff participation in e-learning.	A	2.68	15.02	0.00
			D	4.45						D	4.15		
21		Producing guides to increase courses' pedagogical quality.	A	2.14	28.94	0.00	43		Taking into account academic staff efforts in the promotion processes.	A	2.50	12.63	0.00
			D	4.51						D	3.50		
22		Establishing online communities to share e-learning experiences.	A	2.20	21.59	0.00	44		Arranging funded travel to attend e-learning events.	A	3.36	12.41	0.00
			D	4.14						D	4.34		

All Actual (Alpha)	2.46	33.15	0.00
All Desired (Alpha)	4.46		

Table 4.71 presents a comparison of the ratings of academic staff at Alpha University for actual and desired institutional support. T-test results indicate that the mean of desired institutional support at Alpha University (M= 4.46) is *significantly* higher than that of the actual institutional support (M= 2.46); $t(139)= 33.15$, $p<0.05$. Furthermore, t-test results indicate statistically *significant* differences between the *actual* and *desired* support for all forty-four items. It can be seen that the widest gap reported by academic staff at Alpha University is that between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 1.84 and M=4.83). Meanwhile, the smallest gap is indicated for Item 16, "Offering facilities to participate in e-learning, *e.g*. laptops, tablets, computers labs, etc." (M=3.66 and M=4.55).

In addition, as can be seen in Table 4.72, t-tests result indicates statistically *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, academic staff at Alpha University reported the widest gap in section 6, "training flexibility" (M= 2.23 and M=4.51). On the other hand, they reported the smallest gap in section 4, "technical training" (M= 2.80 and M=4.47).

Table 4.72. Differences Between The Actual And Desired Institutional Support Sections In Alpha University

No	Section		M	t	sig
1	Supportive Institutional Practices	A	2.37	36.11	0.00
		D	4.47		
2	Technical Support	A	2.76	22.83	0.00
		D	4.60		
3	Pedagogical Support	A	2.30	31.66	0.00
		D	4.35		
4	Technical Training	A	2.80	23.90	0.00
		D	4.47		
5	Pedagogical Training	A	2.27	31.29	0.00
		D	4.49		
6	Training Programmes Flexibility	A	2.23	28.91	0.00
		D	4.51		
7	Institutional Incentives	A	2.56	25.68	0.00
		D	4.26		
All (Alpha)		A	2.46	33.15	0.00
		D	4.46		

6.1.2 Differences between the actual and desired institutional support in Beta University

Table 4.73. Differences Between The Actual And Desired Institutional Support Items In Beta University

No	Sec.	Item		M	t	sig	No	Sec.	Item			t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	2.13	21.90	0.00	23	Technical Training	Organising TP to enhance using ICT in teaching.	A	3.01	13.34	0.00
			D	4.36						D	4.34		
2		Stability of e-learning strategies.	A	1.92	22.19	0.00	24		Organising TP to increase course management skills in the VLE.	A	2.86	13.89	0.00
			D	4.26						D	4.39		
3		Clarifying e-learning importance in the university strategic vision.	A	2.18	19.96	0.00	25		Organising TP to increase course content management skills in the VLE.	A	2.44	17.00	0.00
			D	4.18						D	4.43		
4		Representing of academic staff in e-learning planning.	A	2.09	23.55	0.00	26		Organising TP to increase my skills in using communication tools in the VLE.	A	2.18	28.20	0.00
			D	4.34						D	4.13		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	1.80	23.85	0.00	27		Organising TP to increase students' progress tracking skills in the VLE.	A	1.83	25.72	0.00
			D	4.35						D	4.12		
6		The provided support is keeping pace with e-learning programmes growth.	A	1.60	26.74	0.00	28		Organising TP to increase assessments skills in the VLE.	A	2.11	27.45	0.00
			D	4.59						D	4.43		
7		Enlightening AS about e-learning educational opportunities.	A	2.04	21.54	0.00	29	Pedagogical Training	Organising TP to improve instructional design skills.	A	1.92	27.71	0.00
			D	4.55						D	4.53		
8		Identifying the barriers of involvement in e-learning.	A	1.91	24.97	0.00	30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	1.76	24.87	0.00
			D	4.60						D	4.47		
9		E-learning initiatives are driven by researches' findings.	A	2.25	18.75	0.00	31		Organising TP to enhance the interaction through e-learning.	A	1.92	22.59	0.00
			D	4.34						D	4.39		
10		Departments' role in encouraging AS to participate in e-learning.	A	2.03	13.44	0.00	32		Organising TP to increase students' engagement through e-learning.	A	1.93	22.54	0.00
			D	3.36						D	4.22		
11	Technical Support	Providing reliable technical infrastructure.	A	2.73	17.79	0.00	33		Organising TP to improve creating learner-centred learning strategies.	A	1.86	20.24	0.00
			D	4.67						D	3.93		
12		Offering user-friendly Virtual Learning Environments (VLE).	A	2.23	20.74	0.00	34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	1.78	21.15	0.00
			D	4.37						D	4.43		
13		Ensuring continuous access to the VLE.	A	1.95	24.49	0.00	35	TP Flexibility	Designing TP based on accurate need assessments.	A	1.54	27.10	0.00
			D	4.59						D	4.50		
14		Running a 24X7 help desk to provide support.	A	1.79	28.40	0.00	36		TP diversity in terms of means (e.g. face-to-face and online).	A	1.83	22.23	0.00
			D	4.69						D	4.03		
15		Running units for educational multimedia production.	A	1.71	22.45	0.00	37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	1.95	19.61	0.00
			D	4.17						D	4.36		
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs, etc).	A	3.09	13.50	0.00	38		Organising TP in fixable dates.	A	2.04	21.19	0.00
			D	4.37						D	4.40		
17	Pedagogical Support	Facilitating cooperation with instructional designers.	A	1.99	26.02	0.00	39		TP diversity in terms of durations (short term-long term).	A	2.16	22.44	0.00
			D	3.81						D	4.37		
18		Providing authoring tools to design e-learning courses.	A	2.37	19.17	0.00	40	Institutional Incentives	Developing monetary compensation schemes.	A	1.96	20.50	0.00
			D	4.31						D	4.45		
19		Providing prepared pedagogical templates for e-learning course.	A	2.00	19.85	0.00	41		Adjusting traditional workload credits.	A	1.47	34.58	0.00
			D	4.29						D	4.71		
20		Running pedagogical consultations units.	A	1.70	30.27	0.00	42		Appreciating academic staff participation in e-learning.	A	2.14	18.97	0.00
			D	4.47						D	4.13		
21		Producing guides to increase	A	1.97	27.58	0.00	43		Taking into account academic	A	2.02	15.39	0.00

		courses' pedagogical quality.	D	4.35					staff efforts in the promotion processes.	D	3.68		
22		Establishing online communities to share e-learning experiences.	A	2.09	20.10	0.00		44	Arranging funded travel to attend e-learning events.	A	2.85	15.79	0.00
			D	3.87						D	4.32		

All Actual (Beta)	2.07	32.76	0.00
All Desired (Beta)	4.31		

Table 4.73 presents a comparison of the ratings of academic staff at Beta University for actual and desired institutional support; t-test results indicate that the mean of desired institutional support at Beta University (M= 4.31) is *significantly* higher than that of actual institutional support (M= 2.07); t(115)= 32.76, p<0.05. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all forty-four items. It can be seen that the widest gap reported by academic staff at Beta University is that between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 1.47 and M=4.71). Meanwhile, the smallest gap is indicated for Item 16, "Offering facilities to participate in e-learning, e.g. laptops, tablets, computers labs, etc." (M=3.09 and M=4.37).

In addition, as can be seen in Table 4.74, t-tests results indicate statistically *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, academic staff at Beta University reported the widest gap in section 5, "pedagogical training" (M= 1.86 and M=4.33). On the other hand, they reported the smallest gap in section 4, "technical training" (M= 2.41 and M=4.31).

Table 4.74. Differences Between The Actual And Desired Institutional Support Sections In Beta University

No	Section		M	t	sig
1	Supportive Institutional Practices	A	2.00	29.34	0.00
		D	4.29		
2	Technical Support	A	2.25	27.12	0.00
		D	4.48		
3	Pedagogical Support	A	2.02	29.61	0.00
		D	4.19		
4	Technical Training	A	2.41	23.85	0.00
		D	4.31		
5	Pedagogical Training	A	1.86	27.05	0.00
		D	4.33		
6	Training Programmes Flexibility	A	1.91	26.26	0.00
		D	4.33		
7	Institutional Incentives	A	2.09	29.86	0.00
		D	4.26		
All (Beta)		A	2.07	32.76	0.00
		D	4.31		

6.1.3 Differences between the actual and desired institutional support in Gamma University

Table 4.75. Differences Between The Actual And Desired Institutional Support Items In Gamma University

No	Sec.	Item		M	t	sig	No	Sec.	Item			t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	3.15	11.85	0.00	23	Technical Training	Organising TP to enhance using ICT in teaching.	A	3.63	5.68	0.00
			D	4.42						D	4.24		
2		Stability of e-learning strategies.	A	2.61	19.39	0.00	24		Organising TP to increase course management skills in the VLE.	A	3.44	6.27	0.00
			D	4.70						D	4.24		
3		Clarifying e-learning importance in the university strategic vision.	A	3.25	16.54	0.00	25		Organising TP to increase course content management skills in the VLE.	A	3.23	9.15	0.00
			D	4.31						D	4.33		
4		Representing of academic staff in e-learning planning.	A	2.52	18.18	0.00	26		Organising TP to increase my skills in using communication tools in the VLE.	A	2.89	19.00	0.00
			D	4.28						D	4.47		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	2.41	27.40	0.00	27		Organising TP to increase students' progress tracking skills in the VLE.	A	2.64	22.12	0.00
			D	4.31						D	4.43		
6		The provided support is keeping pace with e-learning programmes growth.	A	2.44	21.89	0.00	28		Organising TP to increase assessments skills in the VLE.	A	2.64	21.09	0.00
			D	4.60						D	4.55		
7		Enlightening AS about e-learning educational opportunities.	A	2.39	19.72	0.00	29	Pedagogical Training	Organising TP to improve instructional design skills.	A	2.39	22.40	0.00
			D	4.44						D	4.64		
8		Identifying the barriers of involvement in e-learning.	A	2.15	25.60	0.00	30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	2.47	20.48	0.00
			D	4.52						D	4.41		
9		E-learning initiatives are driven by researches' findings.	A	2.80	15.86	0.00	31		Organising TP to enhance the interaction through e-learning.	A	2.43	28.01	0.00
			D	4.51						D	4.44		
10		Departments' role in encouraging AS to participate in e-learning.	A	3.02	7.93	0.00	32		Organising TP to increase students' engagement through e-learning.	A	2.40	22.18	0.00
			D	3.71						D	4.33		
11	Technical Support	Providing reliable technical infrastructure.	A	3.54	8.77	0.00	33		Organising TP to improve creating learner-centred learning strategies.	A	2.44	19.35	0.00
			D	4.63						D	4.20		
12		Offering user-friendly Virtual Learning Environments (VLE).	A	3.22	11.24	0.00	34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	2.42	24.68	0.00
			D	4.59						D	4.68		
13		Ensuring continuous access to the VLE.	A	2.73	16.44	0.00	35	TP Flexibility	Designing TP based on accurate need assessments.	A	2.26	23.00	0.00
			D	4.46						D	4.66		
14		Running a 24X7 help desk to provide support.	A	2.14	24.82	0.00	36		TP diversity in terms of means (e.g. face-to-face and online).	A	2.53	16.20	0.00
			D	4.53						D	4.30		
15		Running units for educational multimedia production.	A	2.40	20.40	0.00	37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	2.41	21.69	0.00
			D	4.36						D	4.39		
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs, etc).	A	3.79	7.42	0.00	38		Organising TP in fixable dates.	A	2.40	21.65	0.00
			D	4.71						D	4.56		
17	Pedagogical Support	Facilitating cooperation with instructional designers.	A	2.33	23.87	0.00	39		TP diversity in terms of durations (short term-long term).	A	2.44	19.77	0.00
			D	4.24						D	4.25		
18		Providing authoring tools to design e-learning courses.	A	3.17	9.36	0.00	40	Institutional Incentives	Developing monetary compensation schemes.	A	2.81	14.00	0.00
			D	4.17						D	4.38		
19		Providing prepared pedagogical templates for e-learning course.	A	2.73	17.49	0.00	41		Adjusting traditional workload credits.	A	2.18	22.15	0.00
			D	4.24						D	4.60		
20		Running pedagogical consultations units.	A	2.13	24.68	0.00	42		Appreciating academic staff participation in e-learning.	A	2.92	7.28	0.00
			D	4.39						D	3.86		
21		Producing guides to increase courses' pedagogical quality.	A	2.53	14.01	0.00	43		Taking into account academic staff efforts in the promotion processes.	A	2.86	8.03	0.00
			D	4.18						D	3.65		
22		Establishing online communities to share e-learning experiences.	A	2.51	11.61	0.00	44		Arranging funded travel to attend e-learning events.	A	3.66	6.79	0.00
			D	3.97						D	4.45		

All Actual (Gamma)	2.71	27.54	0.00
All Desired (Gamma)	4.37		

Table 4.75 presents a comparison of the rating of academic staff at Gamma University for actual and desired institutional support; t-test results indicate that the mean of desired institutional support at Gamma University (M= 4.37) is *significantly* higher than that of actual institutional support (M= 2.71); t(95)= 27.54, $p<0.05$. Furthermore, t-test results indicate a statistically *significant* difference between the actual and desired support for all forty four items. It can be seen that the widest gap reported by academic staff at Gamma University is

that between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 2.18 and M=4.60). Meanwhile, the smallest gap is indicated for Item 23, "Organising TPs to enhance the use of ICT in teaching" (M=3.63 and M=4.24).

In addition, as can be seen in Table 4.76, t-test results indicate statistically *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, academic staff at Gamma University reported the widest gap in section 5, "pedagogical training" (M= 2.42 and M=4.45). On the other hand, they reported the smallest gap in section 7, "institutional incentives" (M= 2.89 and M=4.19).

Table 4.76. Differences Between The Actual And Desired Institutional Support Sections In Gamma University

No	Section		M	t	Sig
1	Supportive Institutional Practices	A	2.67	26.05	0.00
		D	4.38		
2	Technical Support	A	2.97	18.99	0.00
		D	4.55		
3	Pedagogical Support	A	2.57	21.78	0.00
		D	4.20		
4	Technical Training	A	3.07	16.66	0.00
		D	4.38		
5	Pedagogical Training	A	2.42	28.74	0.00
		D	4.45		
6	Training Programmes Flexibility	A	2.41	25.37	0.00
		D	4.43		
7	Institutional Incentives	A	2.89	14.77	0.00
		D	4.19		
All (Gamma)		A	2.71	27.54	0.00
		D	4.37		

6.1.4 Differences between the actual and desired institutional support in Delta University

Table 4.77. Differences Between The Actual And Desired Institutional Support Items In Delta University

No	Sec.	Item		M	t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	1.87	21.87	0.00
			D	4.37		
2		Stability of e-learning strategies.	A	1.95	22.14	0.00
			D	4.06		
3		Clarifying e-learning importance in the university strategic vision.	A	2.30	16.79	0.00
			D	4.13		
4		Representing of academic staff in e-learning planning.	A	2.03	18.64	0.00
			D	4.31		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	1.76	17.08	0.00
			D	4.14		
6		The provided support is keeping pace with e-learning programmes growth.	A	1.64	24.10	0.00
			D	4.59		
7		Enlightening AS about e-learning educational opportunities.	A	1.74	18.08	0.00
			D	4.49		
8		Identifying the barriers of involvement in e-learning.	A	1.70	23.33	0.00
			D	4.62		
9		E-learning initiatives are driven by researches' findings.	A	1.84	19.97	0.00
			D	4.41		
10		Departments' role in encouraging AS to participate in e-learning.	A	1.90	13.16	0.00
			D	3.43		

No	Sec.	Item			t	sig
23	Technical Training	Organising TP to enhance using ICT in teaching.	A	2.48	16.58	0.00
			D	4.45		
24		Organising TP to increase course management skills in the VLE.	A	2.17	16.48	0.00
			D	4.40		
25		Organising TP to increase course content management skills in the VLE.	A	2.06	17.78	0.00
			D	4.43		
26		Organising TP to increase my skills in using communication tools in the VLE.	A	1.99	24.75	0.00
			D	4.20		
27		Organising TP to increase students' progress tracking skills in the VLE.	A	1.69	26.59	0.00
			D	4.12		
28		Organising TP to increase assessments skills in the VLE.	A	1.86	28.96	0.00
			D	4.34		
29	Pedagogical Training	Organising TP to improve instructional design skills.	A	1.53	27.78	0.00
			D	4.51		
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	1.59	24.23	0.00
			D	4.44		
31		Organising TP to enhance the interaction through e-learning.	A	1.63	24.05	0.00
			D	4.47		
32		Organising TP to increase students' engagement through e-learning.	A	1.65	23.34	0.00
			D	4.41		

11	Technical Support	Providing reliable technical infrastructure.	A	2.40	20.68	0.00	33		Organising TP to improve creating learner-centred learning strategies.	A	1.50	23.03	0.00
			D	4.69						D	3.88		
12		Offering user-friendly Virtual Learning Environments (VLE).	A	1.99	23.40	0.00	34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	1.60	24.24	0.00
			D	4.59						D	4.60		
13		Ensuring continuous access to the VLE.	A	1.67	24.96	0.00	35	TP Flexibility	Designing TP based on accurate need assessments.	A	1.58	22.57	0.00
			D	4.65						D	4.49		
14		Running a 24X7 help desk to provide support.	A	1.58	26.86	0.00	36		TP diversity in terms of means (e.g. face-to-face and online).	A	1.69	19.26	0.00
			D	4.78						D	4.05		
15		Running units for educational multimedia production.	A	1.56	22.68	0.00	37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	1.66	19.41	0.00
			D	4.36						D	4.40		
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs, etc).	A	2.30	20.29	0.00	38		Organising TP in fixable dates.	A	1.69	21.00	0.00
			D	4.60						D	4.40		
17	Pedagogical Support	Facilitating cooperation with instructional designers.	A	1.65	20.41	0.00	39		TP diversity in terms of durations (short term-long term).	A	1.88	20.71	0.00
			D	3.79						D	4.37		
18		Providing authoring tools to design e-learning courses.	A	1.98	22.26	0.00	40	Institutional Incentives	Developing monetary compensation schemes.	A	1.93	18.18	0.00
			D	4.20						D	4.44		
19		Providing prepared pedagogical templates for e-learning course.	A	1.56	21.91	0.00	41		Adjusting traditional workload credits.	A	1.60	26.29	0.00
			D	4.36						D	4.69		
20		Running pedagogical consultations units.	A	1.59	24.38	0.00	42		Appreciating academic staff participation in e-learning.	A	2.26	19.13	0.00
			D	4.26						D	4.33		
21		Producing guides to increase courses' pedagogical quality.	A	1.74	22.95	0.00	43		Taking into account academic staff efforts in the promotion processes.	A	2.07	12.87	0.00
			D	4.40						D	3.52		
22		Establishing online communities to share e-learning experiences.	A	1.69	24.02	0.00	44		Arranging funded travel to attend e-learning events.	A	2.85	15.99	0.00
			D	4.22						D	4.31		

All Actual (Delta)	1.85	30.59	0.00
All Desired (Delta)	4.33		

Table 4.77 presents a comparison of academic staff at Delta University rating for actual and desired institutional support; t-test results indicate that the mean of the desired institutional support at Delta University (M= 4.33) is *significantly* higher than that of the actual institutional support (M= 1.85); t(85)= 30.59, $p<0.05$. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all forty-four items. It can be seen that the widest gap reported by academic staff at Delta University is that between the actual and desired support for Item 14, "Running a 24/7 help desk to provide support", (M= 1.58 and M=4.78). Meanwhile, the smallest gap indicated is for Item 43, "Taking into account academic staff's efforts in the promotion process" (M=2.07 and M=3.52).

In addition, as can be seen in Table 4.78, t-test results indicate statistically *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, academic staff at Delta University reported the widest gap in section 5, "pedagogical training" (M= 1.59 and M=4.39). On the other hand, they reported the smallest gap in section 7, "institutional incentives" (M= 2.14 and M=4.26).

Table 4.78. Differences Between The Actual And Desired Institutional Support Sections In Delta University

No	Section		M	t	sig
1	Supportive Institutional Practices	A	1.87	27.32	0.00
		D	4.25		
2	Technical Support	A	1.92	31.40	0.00
		D	4.61		
3	Pedagogical Support	A	1.70	27.61	0.00
		D	4.20		
4	Technical Training	A	2.04	25.14	0.00
		D	4.32		
5	Pedagogical Training	A	1.59	27.67	0.00
		D	4.39		
6	Training Programmes Flexibility	A	1.70	23.53	0.00
		D	4.34		
7	Institutional Incentives	A	2.14	27.14	0.00
		D	4.26		
All (Delta)		A	1.85	30.59	0.00
		D	4.33		

6.1.5 Differences between the actual and desired institutional support in Epsilon University

Table 4.79. Differences Between The Actual And Desired Institutional Support Items In Epsilon University

No	Sec.	Item		M	t	sig	No	Sec.	Item		M	t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	2.46	13.24	0.00	23	Technical Training	Organising TP to enhance using ICT in teaching.	A	3.13	12.96	0.00
			D	4.43						D	4.83		
2		Stability of e-learning strategies.	A	2.31	17.82	0.00	24		Organising TP to increase course management skills in the VLE.	A	2.79	14.07	0.00
			D	4.53						D	4.86		
3		Clarifying e-learning importance in the university strategic vision.	A	2.68	13.08	0.00	25		Organising TP to increase course content management skills in the VLE.	A	2.44	16.91	0.00
			D	4.20						D	4.99		
4		Representing of academic staff in e-learning planning.	A	2.38	16.21	0.00	26		Organising TP to increase my skills in using communication tools in the VLE.	A	2.34	21.01	0.00
			D	4.36						D	4.25		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	2.00	18.34	0.00	27		Organising TP to increase students' progress tracking skills in the VLE.	A	2.00	20.89	0.00
			D	4.44						D	4.24		
6		The provided support is keeping pace with e-learning programmes growth.	A	1.74	22.82	0.00	28		Organising TP to increase assessments skills in the VLE.	A	2.19	19.35	0.00
			D	4.88						D	4.59		
7		Enlightening AS about e-learning educational opportunities.	A	2.15	17.80	0.00	29	Pedagogical Training	Organising TP to improve instructional design skills.	A	2.16	18.24	0.00
			D	4.89						D	4.68		
8		Identifying the barriers of involvement in e-learning.	A	2.00	20.42	0.00	30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	1.98	17.87	0.00
			D	4.80						D	4.65		
9		E-learning initiatives are driven by researches' findings.	A	2.23	17.43	0.00	31		Organising TP to enhance the interaction through e-learning.	A	2.15	18.27	0.00
			D	4.73						D	4.63		
10		Departments' role in encouraging AS to participate in e-learning.	A	2.15	14.16	0.00	32		Organising TP to increase students' engagement through e-learning.	A	2.09	20.43	0.00
			D	3.79						D	4.49		
11	Technical Support	Providing reliable technical infrastructure.	A	2.88	16.06	0.00	33		Organising TP to improve creating learner-centred learning strategies.	A	1.90	20.59	0.00
			D	4.88						D	4.29		
12		Offering user-friendly Virtual Learning Environments (VLE).	A	2.28	16.37	0.00	34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	2.00	19.17	0.00
			D	4.76						D	4.96		
13		Ensuring continuous access to the VLE.	A	2.45	18.60	0.00	35	TP Flexibility	Designing TP based on accurate need assessments.	A	1.86	22.15	0.00
			D	4.85						D	4.90		
14		Running a 24X7 help desk to provide support.	A	1.73	28.66	0.00	36		TP diversity in terms of means (e.g. face-to-face and online).	A	1.96	16.97	0.00
			D	4.94						D	4.41		
15		Running units for educational multimedia production.	A	1.75	22.29	0.00	37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	1.96	18.11	0.00
			D	4.53						D	4.65		
16		Offering facilities to participate in e-learning (e.g. Laptops, tables..etc).	A	3.18	11.37	0.00	38		Organising TP in fixable dates.	A	2.08	18.54	0.00
			D	4.86						D	4.83		
17	Pedagogical Support	Facilitating cooperation with instructional designers.	A	1.95	26.36	0.00	39		TP diversity in terms of durations (short term-long term).	A	2.16	18.88	0.00
			D	4.01						D	4.68		
18		Providing authoring tools to design e-learning courses.	A	2.44	19.46	0.00	40	Institutional Incentives	Developing monetary compensation schemes.	A	2.15	15.79	0.00
			D	4.64						D	4.66		
19		Providing prepared pedagogical templates for e-learning course.	A	2.14	18.61	0.00	41		Adjusting traditional workload credits.	A	1.64	24.52	0.00
			D	4.64						D	4.89		
20		Running pedagogical consultations units.	A	2.03	20.93	0.00	42		Appreciating academic staff participation in e-learning.	A	2.79	12.31	0.00
			D	4.46						D	4.50		
21		Producing guides to increase	A	2.18	17.88	0.00	43		Taking into account academic	A	2.46	9.89	0.00

		courses' pedagogical quality.	D	4.79					staff efforts in the promotion processes.	D	3.71		
22		Establishing online communities to share e-learning experiences.	A	2.14	17.40	0.00		44	Arranging funded travel to attend e-learning events.	A	3.03	14.84	0.00
			D	4.53						D	4.56		
All Actual (Epsilon)				2.24			22.97		0.00				
All Desired (Epsilon)				4.59									

Table 4.79 presents a comparison of the rating of academic staff at Epsilon University for actual and desired institutional support; t-test results indicate that the mean of desired institutional support at Epsilon University (M= 4.59) is *significantly* higher than that of the actual institutional support (M= 2.24); t(79)= 22.97, p<0.05. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all forty-four items. It can be seen that the widest gap reported by academic staff at Epsilon University is that between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 1.64 and M=4.89). Meanwhile, the smallest gap is indicated for Item 43, "Taking into account academic staff's efforts in the promotion process" (M=2.46 and M=3.71).

In addition, as can be seen in Table 4.80, t-test results indicate statistically *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, academic staff at Epsilon University reported the widest gap in section 6, "training flexibility" (M= 2.01 and M=4.69). On the other hand, they reported the smallest gap in section 7, "institutional incentives" (M= 2.41 and M=4.47).

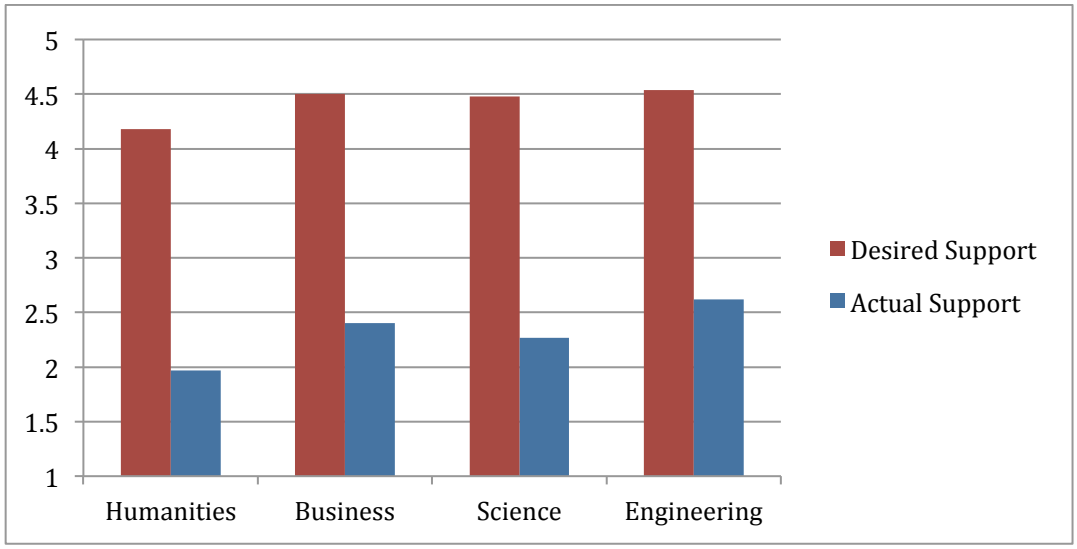
Table 4.80. Differences Between The Actual And Desired Institutional Support Sections In Epsilon University

No	Section		M	t	sig
1	Supportive Institutional Practices	A	2.21	21.60	0.00
		D	4.50		
2	Technical Support	A	2.38	21.37	0.00
		D	4.80		
3	Pedagogical Support	A	2.14	24.31	0.00
		D	4.51		
4	Technical Training	A	2.48	19.23	0.00
		D	4.63		
5	Pedagogical Training	A	2.05	20.67	0.00
		D	4.61		
6	Training Programmes Flexibility	A	2.01	20.57	0.00
		D	4.69		
7	Institutional Incentives	A	2.41	20.16	0.00
		D	4.47		
All (Epsilon)		A	2.24	22.97	0.00
		D	4.59		

6.2. Are there statistically significant differences between the actual and desired institutional support in each faculty?

The following sections present the means and examine differences between the actual and desired institutional support for each of four faculties in five Saudi Arabian universities. These are Humanities, Business, Science and Engineering Faculties (Figure 4.44).

Figure 4.44. Differences Between The Actual And Desired Institutional Support Items In the Four Faculties.



6.2.1 Differences between the actual and desired institutional support in Humanities faculties

Table 4.81. Differences Between The Actual And Desired Institutional Support Items In Humanities Faculties

No	Sec.	Item		M	t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	2.13	23.34	0.00
			D	4.05		
2		Stability of e-learning strategies.	A	1.91	27.92	0.00
			D	4.20		
3		Clarifying e-learning importance in the university strategic vision.	A	2.40	23.59	0.00
			D	3.92		
4		Representing of academic staff in e-learning planning.	A	1.88	27.87	0.00
			D	4.19		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	1.79	28.50	0.00
			D	4.08		
6		The provided support is keeping pace with e-learning programmes growth.	A	1.71	36.31	0.00
			D	4.56		
7		Enlightening AS about e-learning educational opportunities.	A	1.81	29.93	0.00
			D	4.56		
8		Identifying the barriers of involvement in e-learning.	A	1.72	33.20	0.00
			D	4.46		
9		E-learning initiatives are driven by researches' findings.	A	2.05	23.78	0.00
			D	4.24		
10		Departments' role in encouraging AS to participate in e-learning.	A	1.96	14.57	0.00
			D	3.12		
11	Technical Support	Providing reliable technical infrastructure.	A	2.53	23.01	0.00
			D	4.62		
12		Offering user-friendly Virtual Learning Environments (VLE).	A	2.12	24.52	0.00
			D	4.55		
13		Ensuring continuous access to the VLE.	A	1.94	28.19	0.00
			D	4.52		

No	Sec.	Item			t	sig
23	Technical Training	Organising TP to enhance using ICT in teaching.	A	2.75	12.90	0.00
			D	4.17		
24		Organising TP to increase course management skills in the VLE.	A	2.60	12.73	0.00
			D	4.26		
25		Organising TP to increase course content management skills in the VLE.	A	2.31	16.57	0.00
			D	4.36		
26		Organising TP to increase my skills in using communication tools in the VLE.	A	2.03	35.13	0.00
			D	4.02		
27		Organising TP to increase students' progress tracking skills in the VLE.	A	1.87	34.14	0.00
			D	4.05		
28		Organising TP to increase assessments skills in the VLE.	A	1.96	32.02	0.00
			D	4.33		
29	Pedagogical Training	Organising TP to improve instructional design skills.	A	1.84	32.32	0.00
			D	4.24		
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	1.75	31.82	0.00
			D	4.26		
31		Organising TP to enhance the interaction through e-learning.	A	1.81	29.04	0.00
			D	4.09		
32		Organising TP to increase students' engagement through e-learning.	A	1.76	30.66	0.00
			D	4.04		
33		Organising TP to improve creating learner-centred learning strategies.	A	1.68	24.33	0.00
			D	3.75		
34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	1.75	27.57	0.00
			D	4.53		
35		Designing TP based on accurate need assessments.	A	1.60	33.51	0.00
			D	4.46		

14	Pedagogical Support	Running a 24X7 help desk to provide support.	A	1.64	35.95	0.00	36	Institutional Incentives	TP diversity in terms of means (e.g. face-to-face and online).	A	1.77	24.30	0.00
			D	4.68						D	4.09		
15		Running units for educational multimedia production.	A	1.70	27.19	0.00	37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	1.81	25.09	0.00
			D	4.07						D	4.17		
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs, etc).	A	2.79	15.50	0.00	38		Organising TP in fixable dates.	A	1.81	29.13	0.00
			D	4.43						D	4.44		
17		Facilitating cooperation with instructional designers.	A	1.71	28.56	0.00	39		TP diversity in terms of durations (short term-long term).	A	1.89	23.34	0.00
			D	3.56						D	4.30		
18		Providing authoring tools to design e-learning courses.	A	2.17	21.30	0.00	40		Developing monetary compensation schemes.	A	1.99	27.92	0.00
			D	4.03						D	4.15		
19		Providing prepared pedagogical templates for e-learning course.	A	1.85	25.18	0.00	41		Adjusting traditional workload credits.	A	1.52	23.59	0.00
			D	4.09						D	4.69		
20		Running pedagogical consultations units.	A	1.66	34.27	0.00	42		Appreciating academic staff participation in e-learning.	A	2.09	27.87	0.00
			D	4.13						D	3.95		
21		Producing guides to increase courses' pedagogical quality.	A	1.77	28.90	0.00	43		Taking into account academic staff efforts in the promotion processes.	A	2.00	28.50	0.00
			D	4.24						D	3.05		
22		Establishing online communities to share e-learning experiences.	A	1.84	22.17	0.00	44		Arranging funded travel to attend e-learning events.	A	2.81	36.31	0.00
			D	3.93						D	4.11		

All Actual (Hu.)	1.97	35.95	0.00
All Desired (Hu.)	4.18		

Table 4.81 presents a comparison of the rating of academic staff in Humanities faculties for actual and desired institutional support; t-test results indicate that the mean of desired institutional support for Humanities faculties (M= 4.18) is *significantly* higher than that of the mean for actual institutional support (M= 1.97); t(148)= 35.95, p<0.05. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all forty-four items. It can be seen that the widest gap reported by academic staff in Humanities faculties is that between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 1.52 and M=4.69). Meanwhile, the smallest gap is indicated for item 43, "Taking into account academic staff's efforts in the promotion process" (M=2.00 and M=3.05).

In addition, as can be seen in Table 4.82, t-test results indicate statistically *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, academic staff in Humanities faculties reported that the widest gap was in section 6, "training flexibility" (M= 1.78 and M=4.29). On the other hand, they reported that the smallest gap was in section 7, "institutional incentives" (M= 2.08 and M=3.99).

Table 4.82. Differences Between The Actual And Desired Institutional Support Sections In Humanities Faculties

No	Section		M	t	sig
1	Supportive Institutional Practices	A	1.94	29.93	0.00
		D	4.14		
2	Technical Support	A	2.12	33.20	0.00
		D	4.48		
3	Pedagogical Support	A	1.83	23.78	0.00
		D	4.00		
4	Technical Training	A	2.25	14.57	0.00
		D	4.20		

5	Pedagogical Training	A	1.76	23.01	0.00
		D	4.15		
6	Training Programmes Flexibility	A	1.78	24.52	0.00
		D	4.29		
7	Institutional Incentives	A	2.08	28.19	0.00
		D	3.99		
All (Art)		A	1.97	35.95	0.00
		D	4.18		

6.2.2 Differences between the actual and desired institutional support in Business Faculties

Table 4.83. Differences Between The Actual And Desired Institutional Support Items In Business Faculties

No	Sec.	Item		M	t	sig	No	Sec.	Item			t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	2.62	16.71	0.00	23	Technical Training	Organising TP to enhance using ICT in teaching.	A	3.26	12.19	0.00
			D	4.56						D	4.52		
2		Stability of e-learning strategies.	A	2.34	19.29	0.00	24		Organising TP to increase course management skills in the VLE.	A	3.08	12.45	0.00
			D	4.51						D	4.50		
3		Clarifying e-learning importance in the university strategic vision.	A	2.77	15.55	0.00	25		Organising TP to increase course content management skills in the VLE.	A	2.74	16.19	0.00
			D	4.42						D	4.56		
4		Representing of academic staff in e-learning planning.	A	2.43	20.55	0.00	26		Organising TP to increase my skills in using communication tools in the VLE.	A	2.50	23.93	0.00
			D	4.39						D	4.38		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	2.21	18.78	0.00	27		Organising TP to increase students' progress tracking skills in the VLE.	A	2.19	23.63	0.00
			D	4.45						D	4.35		
6		The provided support is keeping pace with e-learning programmes growth.	A	2.01	24.04	0.00	28		Organising TP to increase assessments skills in the VLE.	A	2.42	25.31	0.00
			D	4.75						D	4.57		
7		Enlightening AS about e-learning educational opportunities.	A	2.35	20.73	0.00	29	Pedagogical Training	Organising TP to improve instructional design skills.	A	2.20	27.01	0.00
			D	4.73						D	4.70		
8		Identifying the barriers of involvement in e-learning.	A	2.21	25.44	0.00	30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	2.13	23.84	0.00
			D	4.75						D	4.65		
9		E-learning initiatives are driven by researches' findings.	A	2.50	18.74	0.00	31		Organising TP to enhance the interaction through e-learning.	A	2.23	23.16	0.00
			D	4.56						D	4.57		
10		Departments' role in encouraging AS to participate in e-learning.	A	2.57	11.66	0.00	32		Organising TP to increase students' engagement through e-learning.	A	2.21	22.87	0.00
			D	3.78						D	4.47		
11	Technical Support	Providing reliable technical infrastructure.	A	3.21	13.34	0.00	33		Organising TP to improve creating learner-centred learning strategies.	A	2.12	23.53	0.00
			D	4.72						D	4.18		
12		Offering user-friendly Virtual Learning Environments (VLE).	A	2.68	16.31	0.00	34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	2.17	23.65	0.00
			D	4.51						D	4.73		
13		Ensuring continuous access to the VLE.	A	2.62	18.91	0.00	35	TP Flexibility	Designing TP based on accurate need assessments.	A	1.77	27.67	0.00
			D	4.70						D	4.64		
14		Running a 24X7 help desk to provide support.	A	2.03	26.34	0.00	36		TP diversity in terms of means (e.g. face-to-face and online).	A	2.18	23.55	0.00
			D	4.69						D	4.30		
15		Running units for educational multimedia production.	A	2.01	21.52	0.00	37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	2.21	20.28	0.00
			D	4.36						D	4.50		
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computer labs..etc).	A	3.37	11.66	0.00	38		Organising TP in fixable dates.	A	2.27	22.60	0.00
			D	4.62						D	4.60		
17	Pedagogical Support	Facilitating cooperation with instructional designers.	A	2.18	27.23	0.00	39		TP diversity in terms of durations (short term-long term).	A	2.31	26.90	0.00
			D	4.20						D	4.56		
18		Providing authoring tools to design e-learning courses.	A	2.75	15.45	0.00	40	Institutional Incentives	Developing monetary compensation schemes.	A	2.29	20.63	0.00
			D	4.49						D	4.56		
19		Providing prepared pedagogical templates for e-learning course.	A	2.26	19.82	0.00	41		Adjusting traditional workload credits.	A	1.83	32.16	0.00
			D	4.50						D	4.78		
20		Running pedagogical consultations units.	A	2.01	24.91	0.00	42		Appreciating academic staff participation in e-learning.	A	2.51	16.92	0.00
			D	4.50						D	4.30		
21		Producing guides to increase courses' pedagogical quality.	A	2.19	24.92	0.00	43		Taking into account academic staff efforts in the promotion processes.	A	2.43	14.12	0.00
			D	4.59						D	3.94		
22		Establishing online communities to share e-learning experiences.	A	2.17	20.24	0.00	44		Arranging funded travel to attend e-learning events.	A	3.25	13.64	0.00
			D	4.17						D	4.53		

All Actual (Business)	2.40	29.33	0.00
All Desired (Business)	4.50		

Table 4.83 presents a comparison of the rating of academic staff in Business faculties for actual and desired institutional support; t-test results indicate that the mean for desired institutional support in Business faculties (M= 4.50) is *significantly* higher than that for actual institutional support (M= 2.40); t(114)= 29.33, p<0.05. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all forty-four items. It can be seen that the widest gap reported by academic staff in Business faculties is that between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 1.83 and M=4.78). Meanwhile, the smallest gap is indicated for Item 10 "Departments' role in encouraging AS to participate in e-learning" (M=2.57 and M=3.78).

In addition, as can be seen in Table 4.84, t-test results indicate statistically *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, academic staff in Business faculties reported that the widest gap was in section 5, "pedagogical training" (M= 2.18 and M=4.55). On the other hand, they reported that the smallest gap was in section 4, "technical training" (M= 2.70 and M=4.48).

Table 4.84. Differences Between The Actual And Desired Institutional Support Sections In Business Faculties

No	Section		M	t	sig
1	Supportive Institutional Practices	A	2.40	25.10	0.00
		D	4.49		
2	Technical Support	A	2.65	22.45	0.00
		D	4.60		
3	Pedagogical Support	A	2.26	27.43	0.00
		D	4.41		
4	Technical Training	A	2.70	21.69	0.00
		D	4.48		
5	Pedagogical Training	A	2.18	27.66	0.00
		D	4.55		
6	Training Programmes Flexibility	A	2.15	27.90	0.00
		D	4.52		
7	Institutional Incentives	A	2.46	26.43	0.00
		D	4.42		
All (Business)		A	2.40	29.33	0.00
		D	4.50		

6.2.3 Differences between the actual and desired institutional support in Sciences Faculties

Table 4.85. Differences Between The Actual And Desired Institutional Support Items In Science Faculties

No	Sec.	Item		M	t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	2.40	22.14	0.00
			D	4.54		
2		Stability of e-learning strategies.	A	2.25	31.40	0.00
			D	4.56		
3		Clarifying e-learning importance in the university strategic vision.	A	2.70	20.11	0.00
			D	4.30		

No	Sec.	Item			t	sig
23	Technical Training	Organising TP to enhance using ICT in teaching.	A	3.26	14.95	0.00
			D	4.56		
24		Organising TP to increase course management skills in the VLE.	A	3.00	15.48	0.00
			D	4.58		
25		Organising TP to increase course content management skills in the VLE.	A	2.61	18.97	0.00
			D	4.65		

4		Representing of academic staff in e-learning planning.	A	2.21	27.55	0.00	26		Organising TP to increase my skills in using communication tools in the VLE.	A	2.42	33.52	0.00
			D	4.41						D	4.28		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	1.94	29.84	0.00	27		Organising TP to increase students' progress tracking skills in the VLE.	A	2.07	31.28	0.00
			D	4.38						D	4.26		
6		The provided support is keeping pace with e-learning programmes growth.	A	1.84	28.89	0.00	28		Organising TP to increase assessments skills in the VLE.	A	2.21	33.10	0.00
			D	4.75						D	4.56		
7		Enlightening AS about e-learning educational opportunities.	A	2.07	26.25	0.00	29	Pedagogical Training	Organising TP to improve instructional design skills.	A	2.12	28.49	0.00
			D	4.71						D	4.72		
8		Identifying the barriers of involvement in e-learning.	A	1.92	33.00	0.00	30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	1.96	27.55	0.00
			D	4.76						D	4.65		
9		E-learning initiatives are driven by researches' findings.	A	2.41	21.39	0.00	31		Organising TP to enhance the interaction through e-learning.	A	2.14	26.51	0.00
			D	4.58						D	4.55		
10		Departments' role in encouraging AS to participate in e-learning.	A	2.26	15.09	0.00	32		Organising TP to increase students' engagement through e-learning.	A	2.06	26.30	0.00
			D	3.55						D	4.43		
11	Technical Support	Providing reliable technical infrastructure.	A	2.99	18.81	0.00	33		Organising TP to improve creating learner-centred learning strategies.	A	2.01	26.73	0.00
			D	4.79						D	4.13		
12		Offering user-friendly Virtual Learning Environments (VLE).	A	2.59	21.59	0.00	34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	1.91	29.16	0.00
			D	4.65						D	4.73		
13		Ensuring continuous access to the VLE.	A	2.28	22.31	0.00	35	TP Flexibility	Designing TP based on accurate need assessments.	A	1.79	32.84	0.00
			D	4.63						D	4.74		
14		Running a 24X7 help desk to provide support.	A	1.90	30.36	0.00	36		TP diversity in terms of means (e.g. face-to-face and online).	A	1.94	23.92	0.00
			D	4.77						D	4.14		
15		Running units for educational multimedia production.	A	1.81	28.28	0.00	37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	1.94	24.22	0.00
			D	4.46						D	4.46		
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computer labs..etc).	A	3.44	12.36	0.00	38		Organising TP in fixable dates.	A	2.20	25.10	0.00
			D	4.63						D	4.67		
17	Pedagogical Support	Facilitating cooperation with instructional designers.	A	2.08	31.99	0.00	39		TP diversity in terms of durations (short term-long term).	A	2.22	25.33	0.00
			D	4.04						D	4.45		
18		Providing authoring tools to design e-learning courses.	A	2.54	20.22	0.00	40	Institutional Incentives	Developing monetary compensation schemes.	A	2.28	21.84	0.00
			D	4.41						D	4.63		
19		Providing prepared pedagogical templates for e-learning course.	A	2.19	23.20	0.00	41		Adjusting traditional workload credits.	A	1.66	34.05	0.00
			D	4.50						D	4.79		
20		Running pedagogical consultations units.	A	1.88	32.49	0.00	42		Appreciating academic staff participation in e-learning.	A	2.64	16.80	0.00
			D	4.48						D	4.30		
21		Producing guides to increase courses' pedagogical quality.	A	2.10	25.29	0.00	43		Taking into account academic staff efforts in the promotion processes.	A	2.39	15.93	0.00
			D	4.52						D	3.68		
22		Establishing online communities to share e-learning experiences.	A	2.14	21.02	0.00	44		Arranging funded travel to attend e-learning events.	A	3.19	16.05	0.00
			D	4.19						D	4.46		

All Actual (Science)	2.27	33.11	0.00
All Desired (Science)	4.48		

Table 4.85 presents a comparison of the rating of academic staff in Science faculties for actual and desired institutional support; t-test results indicate that the mean for desired institutional support in Science faculties (M= 4.48) is *significantly* higher than that of the actual institutional support (M= 2.27); $t(144)= 33.11$, $p<0.05$. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all forty-four items. It can be seen that the widest gap reported by academic staff in Science faculties is that between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 1.66 and M=4.79). Meanwhile, the smallest gap is indicated for Item 16, "Offering facilities to participate in e-learning, *e.g*. laptops, tablets, computer labs, etc." (M=3.44 and M=4.63).

In addition, as can be seen in Table 4.86, t-tests results indicate statistically *significant* differences for all seven sections. In terms of gaps between actual and

desired institutional support sections, academic staff in Science faculties reported that the widest gap was in section 5, "pedagogical training" (M= 2.03 and M=4.53). On the other hand, they reported that the smallest gap was in section 4, "technical training" (M= 2.59 and M=4.48).

Table 4.86. Differences Between The Actual And Desired Institutional Support Sections In Science Faculties

No	Section		M	t	sig
1	Supportive Institutional Practices	A	2.20	33.30	0.00
		D	4.45		
2	Technical Support	A	2.50	26.34	0.00
		D	4.65		
3	Pedagogical Support	A	2.15	31.37	0.00
		D	4.36		
4	Technical Training	A	2.59	26.80	0.00
		D	4.48		
5	Pedagogical Training	A	2.03	31.21	0.00
		D	4.53		
6	Training Programmes Flexibility	A	2.02	29.60	0.00
		D	4.49		
7	Institutional Incentives	A	2.43	27.89	0.00
		D	4.37		
All (Science)		A	2.27	33.11	0.00
		D	4.48		

6.2.4 Differences between the actual and desired institutional support in Engineering Faculties

Table 4.87. Differences Between The Actual And Desired Institutional Support Items In Engineering Faculties

No	Sec.	Item		M	t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	2.67	16.60	0.00
			D	4.61		
2		Stability of e-learning strategies.	A	2.55	20.57	0.00
			D	4.61		
3		Clarifying e-learning importance in the university strategic vision.	A	2.88	14.59	0.00
			D	4.39		
4		Representing of academic staff in e-learning planning.	A	2.65	17.72	0.00
			D	4.43		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	2.23	22.22	0.00
			D	4.54		
6		The provided support is keeping pace with e-learning programmes growth.	A	2.20	20.90	0.00
			D	4.79		
7		Enlightening AS about e-learning educational opportunities.	A	2.41	18.03	0.00
			D	4.57		
8		Identifying the barriers of involvement in e-learning.	A	2.16	22.30	0.00
			D	4.74		
9		E-learning initiatives are driven by researches' findings.	A	2.63	17.14	0.00
			D	4.58		
10		Departments' role in encouraging AS to participate in e-learning.	A	2.81	10.14	0.00
			D	3.89		
11	Technical Support	Providing reliable technical infrastructure.	A	3.35	11.60	0.00
			D	4.74		
12		Offering user-friendly Virtual Learning Environments (VLE).	A	2.99	13.99	0.00
			D	4.68		
13		Ensuring continuous access to the VLE.	A	2.59	17.32	0.00
			D	4.67		
14		Running a 24X7 help desk to provide support.	A	2.06	24.60	0.00
			D	4.67		
15		Running units for educational multimedia production.	A	2.17	21.35	0.00
			D	4.56		
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computer labs.etc).	A	3.53	8.91	0.00
			D	4.75		

No	Sec.	Item		M	t	sig
23	Technical Training	Organising TP to enhance using ICT in teaching.	A	3.44	10.35	0.00
			D	4.61		
24		Organising TP to increase course management skills in the VLE.	A	3.21	12.44	0.00
			D	4.61		
25		Organising TP to increase course content management skills in the VLE.	A	2.98	13.09	0.00
			D	4.61		
26		Organising TP to increase my skills in using communication tools in the VLE.	A	2.80	19.30	0.00
			D	4.50		
27		Organising TP to increase students' progress tracking skills in the VLE.	A	2.44	19.65	0.00
			D	4.44		
28		Organising TP to increase assessments skills in the VLE.	A	2.61	20.50	0.00
			D	4.59		
29	Pedagogical Training	Organising TP to improve instructional design skills.	A	2.48	19.78	0.00
			D	4.75		
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	2.36	17.31	0.00
			D	4.59		
31		Organising TP to enhance the interaction through e-learning.	A	2.37	21.83	0.00
			D	4.70		
32		Organising TP to increase students' engagement through e-learning.	A	2.40	19.68	0.00
			D	4.54		
33		Organising TP to improve creating learner-centred learning strategies.	A	2.34	19.41	0.00
			D	4.44		
34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	2.31	20.07	0.00
			D	4.74		
35	TP Flexibility	Designing TP based on accurate need assessments.	A	2.32	19.24	0.00
			D	4.80		
36		TP diversity in terms of means (e.g. face-to-face and online).	A	2.46	15.14	0.00
			D	4.29		
37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	2.39	17.59	0.00
			D	4.58		
38		Organising TP in fixable dates.	A	2.49	18.67	0.00
			D	4.63		

17	Pedagogical Support	Facilitating cooperation with instructional designers.	A	2.36	26.18	0.00	39		TP diversity in terms of durations (short term-long term).	A	2.57	17.09	0.00
			D	4.38						D	4.49		
18		Providing authoring tools to design e-learning courses.	A	2.90	13.37	0.00	40	Institutional Incentives	Developing monetary compensation schemes.	A	2.61	13.39	0.00
			D	4.52						D	4.62		
19		Providing prepared pedagogical templates for e-learning course.	A	2.62	17.84	0.00	41		Adjusting traditional workload credits.	A	2.09	18.71	0.00
			D	4.56						D	4.72		
20		Running pedagogical consultations units.	A	2.24	21.89	0.00	42		Appreciating academic staff participation in e-learning.	A	3.08	7.83	0.00
			D	4.62						D	4.19		
21		Producing guides to increase courses' pedagogical quality.	A	2.52	16.84	0.00	43		Taking into account academic staff efforts in the promotion processes.	A	2.83	9.00	0.00
			D	4.43						D	3.91		
22		Establishing online communities to share e-learning experiences.	A	2.52	15.61	0.00	44		Arranging funded travel to attend e-learning events.	A	3.52	8.87	0.00
			D	4.23						D	4.51		

All Actual (Engineering)	2.62	22.54	0.00
All Desired (Engineering)	4.54		

Table 4.87 presents a comparison of the rating of academic staff in Engineering faculties for actual and desired institutional support; t-test results indicate that the mean for desired institutional support for Engineering faculties (M= 4.54) is *significantly* higher than that of the actual institutional support (M= 2.62); $t(108)= 22.54$, $p<0.05$. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all forty-four items. It can be seen that the widest gap reported by academic staff in Engineering faculties is that between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 2.09 and M=4.72). Meanwhile, the smallest gap is indicated for item 44, "Arranging funded travel to attend e-learning events" (M=4.51 and M=3.52).

In addition, as can be seen in Table 4.88, t-test results indicate statistically *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, academic staff in Engineering faculties reported that the widest gap was in section 5, "pedagogical training" (M= 2.38 and M=4.63). On the other hand, they reported that the smallest gap was in section 7, "institutional incentives" (M= 2.83 and M=4.39).

Table 4.88. Differences Between The Actual And Desired Institutional Support Sections In Engineering Faculties

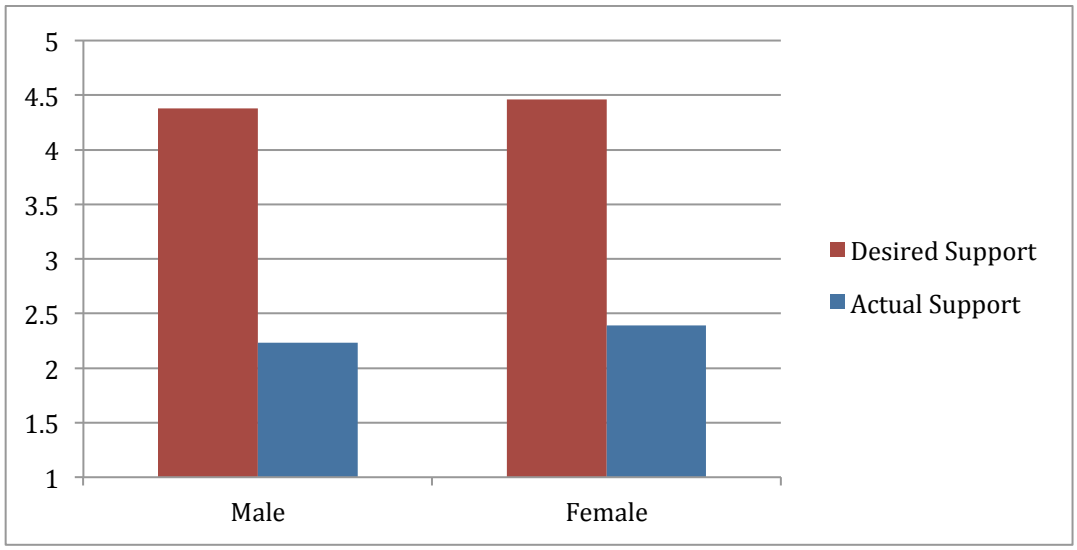
No	Section		M	t	sig
1	Supportive Institutional Practices	A	2.52	23.53	0.00
		D	4.52		
2	Technical Support	A	2.78	19.21	0.00
		D	4.68		
3	Pedagogical Support	A	2.53	21.98	0.00
		D	4.46		
4	Technical Training	A	2.91	18.06	0.00
		D	4.56		
5	Pedagogical Training	A	2.38	22.10	0.00
		D	4.63		
6	Training Programmes Flexibility	A	2.44	19.95	0.00
		D	4.56		

7	Institutional Incentives	A	2.83	14.27	0.00
		D	4.39		
All (Engineering)		A	2.62	22.54	0.00
		D	4.54		

6.3. Are there statistically significant differences between the actual and desired institutional support in each gender category?

The following sections present the means and examine differences between the actual and desired institutional support in for each gender (Figure 4.45).

Figure 4.45. Differences Between The Actual And Desired Institutional Support According To Male and Female Academic Staff



6.3.1 Differences between the actual and desired institutional support according to male academic staff

Table 4.89. Differences Between The Actual And Desired Institutional Support items According To Male Academic Staff

No	Sec.	Item		M	t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	2.38	31.77	0.00
			D	4.36		
2		Stability of e-learning strategies.	A	2.23	36.70	0.00
			D	4.38		
3		Clarifying e-learning importance in the university strategic vision.	A	2.61	29.49	0.00
			D	4.18		
4		Representing of academic staff in e-learning planning.	A	2.24	36.74	0.00
			D	4.27		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	1.97	39.24	0.00
			D	4.29		
6		The provided support is keeping pace with e-learning programmes growth.	A	1.91	41.26	0.00
			D	4.65		
7		Enlightening AS about e-learning educational opportunities.	A	2.10	37.61	0.00
			D	4.64		
8		Identifying the barriers of involvement in e-learning.	A	2.00	41.35	0.00
			D	4.59		
9		E-learning initiatives are driven by researches' findings.	A	2.28	31.34	0.00
			D	4.40		
10		Departments' role in encouraging AS to participate in e-learning.	A	2.29	21.85	0.00
			D	3.58		
11	mc al Su	Providing reliable technical infrastructure.	A	2.95	26.29	0.00
			D	4.71		

No	Sec.	Item			t	sig
23	Technical Training	Organising TP to enhance using ICT in teaching.	A	3.05	22.19	0.00
			D	4.48		
24		Organising TP to increase course management skills in the VLE.	A	2.82	23.10	0.00
			D	4.52		
25		Organising TP to increase course content management skills in the VLE.	A	2.54	27.81	0.00
			D	4.58		
26		Organising TP to increase my skills in using communication tools in the VLE.	A	2.34	43.48	0.00
			D	4.22		
27		Organising TP to increase students' progress tracking skills in the VLE.	A	2.11	40.65	0.00
			D	4.20		
28		Organising TP to increase assessments skills in the VLE.	A	2.21	42.55	0.00
			D	4.42		
29	Pedagogical Training	Organising TP to improve instructional design skills.	A	2.07	41.37	0.00
			D	4.50		
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	1.97	39.05	0.00
			D	4.46		
31		Organising TP to enhance the interaction through e-learning.	A	2.03	39.61	0.00
			D	4.38		
32		Organising TP to increase students' engagement through e-learning.	A	1.99	40.94	0.00
			D	4.31		
33		Organising TP to improve creating learner-centred learning strategies.	A	1.97	37.02	0.00
			D	4.07		

12		Offering user-friendly Virtual Learning Environments (VLE).	A	2.54	29.42	0.00	34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	1.96	39.23	0.00
			D	4.59						D	4.66		
13		Ensuring continuous access to the VLE.	A	2.34	31.99	0.00	35	TP Flexibility	Designing TP based on accurate need assessments.	A	1.81	43.01	0.00
			D	4.62						D	4.60		
14		Running a 24X7 help desk to provide support.	A	1.92	41.99	0.00	36		TP diversity in terms of means (e.g. face-to-face and online).	A	1.98	34.95	0.00
			D	4.68						D	4.23		
15		Running units for educational multimedia production.	A	1.90	36.87	0.00	37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	1.97	36.63	0.00
			D	4.31						D	4.41		
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs .etc).	A	3.13	20.12	0.00	38		Organising TP in fixable dates.	A	2.10	38.01	0.00
			D	4.59						D	4.57		
17	Pedagogical Support	Facilitating cooperation with instructional designers.	A	2.01	42.11	0.00	39		TP diversity in terms of durations (short term-long term).	A	2.16	37.51	0.00
			D	3.97						D	4.46		
18		Providing authoring tools to design e-learning courses.	A	2.47	28.85	0.00	40	Institutional Incentives	Developing monetary compensation schemes.	A	2.15	31.66	0.00
			D	4.31						D	4.43		
19		Providing prepared pedagogical templates for e-learning course.	A	2.13	34.28	0.00	41		Adjusting traditional workload credits.	A	1.71	45.01	0.00
			D	4.35						D	4.71		
20		Running pedagogical consultations units.	A	1.88	43.53	0.00	42		Appreciating academic staff participation in e-learning.	A	2.45	25.76	0.00
			D	4.33						D	4.17		
21		Producing guides to increase courses' pedagogical quality.	A	2.05	38.32	0.00	43		Taking into account academic staff efforts in the promotion processes.	A	2.31	20.50	0.00
			D	4.42						D	3.57		
22		Establishing online communities to share e-learning experiences.	A	2.06	32.55	0.00	44		Arranging funded travel to attend e-learning events.	A	3.03	24.34	0.00
			D	4.16						D	4.39		

All Actual (Male)	2.23	48.92	0.00
All Desired (Male)	4.38		

Table 4.89 presents a comparison of male academic staff's rating of actual and desired institutional support; t-test results indicate that the mean for the desired institutional support for males (M= 4.38) is *significantly* higher than that for the actual institutional support for males (M= 2.23); t(335)= 48.92, p<0.05. Furthermore, t-test results indicate statistically *significant* difference between the actual and desired support for all forty-four items. It can be seen that the widest gap reported by male academic staff is that between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 1.71 and M=4.71). Meanwhile, the smallest gap is indicated for Item 43, "Taking into account academic staff's efforts in the promotion processes" (M=2.31 and M=3.57).

In addition, as can be seen in Table 4.90, t-tests results indicate statistically *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, male academic staff reported that the widest gap was in section 6, "training flexibility" (M= 2.00 and M=4.45). On the other hand, they reported that the smallest gap was in section 4, "technical training" (M= 2.51 and M=4.40).

Table 4.90. Differences Between The Actual And Desired Institutional Support Sections According To Male Academic Staff

No	Section		M	t	sig
1	Supportive Institutional Practices	A	2.20	46.25	0.00
		D	4.33		
2	Technical Support	A	2.46	37.60	0.00
		D	4.58		
3	Pedagogical Support	A	2.10	45.24	0.00
		D	4.26		
4	Technical Training	A	2.51	37.15	0.00
		D	4.40		
5	Pedagogical Training	A	2.00	45.77	0.00
		D	4.40		
6	Training Programmes Flexibility	A	2.00	43.98	0.00
		D	4.45		
7	Institutional Incentives	A	2.33	39.95	0.00
		D	4.25		
All (Male)		A	2.23	48.92	0.00
		D	4.38		

6.3.2 Differences between the actual and desired institutional support according to female academic staff

Table 4.91. Differences Between The Actual And Desired Institutional Support items According To Female Academic Staff

No	Sec.	Item		M	t	sig	No	Sec.	Item			t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	2.52	23.12	0.00	23	Technical Training	Organising TP to enhance using ICT in teaching.	A	3.34	12.47	0.00
			D	4.54						D	4.40		
2		Stability of e-learning strategies.	A	2.24	33.80	0.00	24		Organising TP to increase course management skills in the VLE.	A	3.18	13.11	0.00
			D	4.59						D	4.40		
3		Clarifying e-learning importance in the university strategic vision.	A	2.77	21.22	0.00	25		Organising TP to increase course content management skills in the VLE.	A	2.80	16.91	0.00
			D	4.33						D	4.46		
4		Representing of academic staff in e-learning planning.	A	2.30	28.43	0.00	26		Organising TP to increase my skills in using communication tools in the VLE.	A	2.52	33.12	0.00
			D	4.49						D	4.37		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	2.09	29.58	0.00	27		Organising TP to increase students' progress tracking skills in the VLE.	A	2.13	36.01	0.00
			D	4.44						D	4.35		
6		The provided support is keeping pace with e-learning programmes growth.	A	1.93	36.24	0.00	28		Organising TP to increase assessments skills in the VLE.	A	2.38	35.11	0.00
			D	4.79						D	4.66		
7		Enlightening AS about e-learning educational opportunities.	A	2.19	28.19	0.00	29	Pedagogical Training	Organising TP to improve instructional design skills.	A	2.26	33.58	0.00
			D	4.65						D	4.74		
8		Identifying the barriers of involvement in e-learning.	A	1.94	42.67	0.00	30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	2.12	30.03	0.00
			D	4.81						D	4.64		
9		E-learning initiatives are driven by researches' findings.	A	2.54	26.48	0.00	31		Organising TP to enhance the interaction through e-learning.	A	2.26	31.28	0.00
			D	4.63						D	4.59		
10		Departments' role in encouraging AS to participate in e-learning.	A	2.48	14.07	0.00	32		Organising TP to increase students' engagement through e-learning.	A	2.24	28.09	0.00
			D	3.49						D	4.42		
11	Technical Support	Providing reliable technical infrastructure.	A	3.04	19.55	0.00	33		Organising TP to improve creating learner-centred learning strategies.	A	2.09	29.00	0.00
			D	4.74						D	4.15		
12		Offering user-friendly Virtual Learning Environments (VLE).	A	2.59	23.69	0.00	34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	2.09	31.64	0.00
			D	4.61						D	4.71		
13		Ensuring continuous access to the VLE.	A	2.29	30.34	0.00	35	TP Flexibility	Designing TP based on accurate need assessments.	A	1.90	35.76	0.00
			D	4.62						D	4.75		
14		Running a 24X7 help desk to provide support.	A	1.83	45.45	0.00	36		TP diversity in terms of means (e.g. face-to-face and online).	A	2.19	25.12	0.00
			D	4.75						D	4.13		
15		Running units for educational multimedia production.	A	1.90	33.99	0.00	37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	2.21	24.20	0.00
			D	4.42						D	4.41		
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs.etc).	A	3.48	13.49	0.00	38		Organising TP in fixable dates.	A	2.29	28.81	0.00
			D	4.60						D	4.59		
17	Pedagogical Support	Facilitating cooperation with instructional designers.	A	2.13	41.56	0.00	39		TP diversity in terms of durations (short term-long term).	A	2.33	27.56	0.00
			D	4.08						D	4.40		
18		Providing authoring tools to design e-learning courses.	A	2.70	20.13	0.00	40	ution al Incen	Developing monetary compensation schemes.	A	2.49	22.31	0.00
			D	4.41						D	4.55		
19		Providing prepared pedagogical	A	2.33	26.09	0.00	41		Adjusting traditional workload	A	1.82	42.57	0.00

		templates for e-learning course.	D	4.47					credits.	D	4.82		
20		Running pedagogical consultations units.	A	2.00	36.51	0.00		42	Appreciating academic staff participation in e-learning.	A	2.73	16.17	0.00
			D	4.57						D	4.19		
21		Producing guides to increase courses' pedagogical quality.	A	2.23	27.56	0.00		43	Taking into account academic staff efforts in the promotion processes.	A	2.52	15.37	0.00
			D	4.47						D	3.68		
22		Establishing online communities to share e-learning experiences.	A	2.29	22.93	0.00		44	Arranging funded travel to attend e-learning events.	A	3.41	13.60	0.00
			D	4.05						D	4.37		

All Actual (Female)	2.39	37.16	0.00
All Desired (Female)	4.46		

Table 4.91 presents a comparison of female academic staff's rating for actual and desired institutional support; t-test results indicate that the mean for desired institutional support for females (M= 4.46) is *significantly* higher than that for the actual institutional support (M= 2.39); t(118)= 37.16, p<0.05. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all forty-four items. It can be seen that the widest gap reported by female academic staff is that between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 1.82 and M=4.82). Meanwhile, the smallest gap is indicated for item 44, "Arranging funded travel to attend e-learning events" (M=3.41 and M=4.37).

In addition, as can be seen in Table 4.92, t-test results indicate statistically *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, female academic staff reported that the widest gap was in section 5, "pedagogical training" (M= 2.18 and M=4.54). On the other hand, they reported that the smallest gap was in section 4, "technical training" (M= 2.73 and M=4.44).

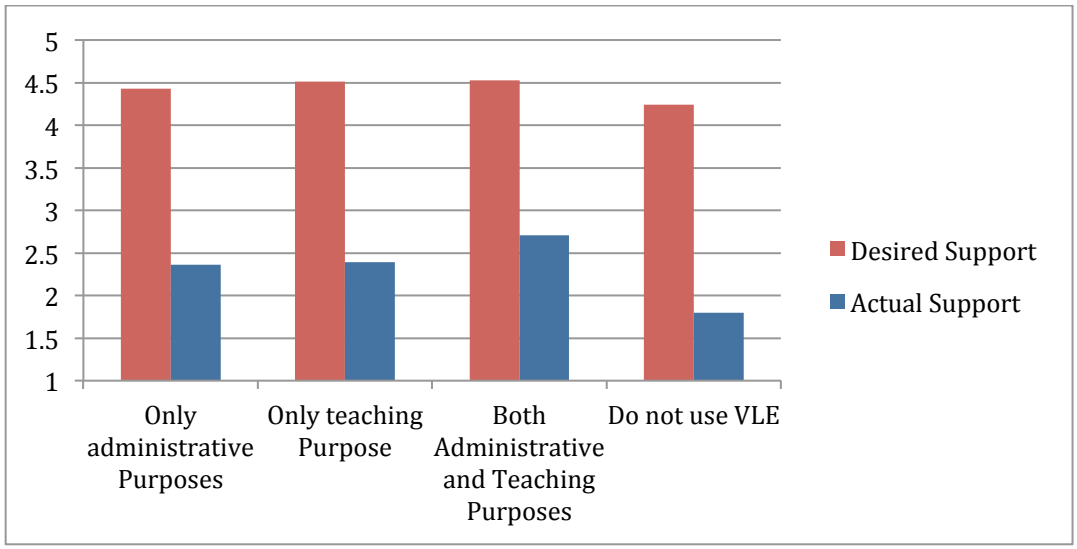
Table 4.92. Differences Between The Actual And Desired Institutional Support Sections According To Female Academic Staff

No	Section		M	t	sig
1	Supportive Institutional Practices	A	2.30	39.12	0.00
		D	4.48		
2	Technical Support	A	2.52	32.89	0.00
		D	4.62		
3	Pedagogical Support	A	2.28	35.90	0.00
		D	4.34		
4	Technical Training	A	2.73	26.75	0.00
		D	4.44		
5	Pedagogical Training	A	2.18	34.91	0.00
		D	4.54		
6	Training Programmes Flexibility	A	2.18	31.92	0.00
		D	4.46		
7	Institutional Incentives	A	2.59	28.13	0.00
		D	4.32		
All (Female)		A	2.39	37.16	0.00
		D	4.46		

6.4 Are there statistically significant differences between the actual and desired institutional support in each category of main purpose of using VLE?

The following sections present the means and examine differences between the actual and desired institutional support for each category of main purpose of using VLE (Figure 4.46).

Figure 4.46. Differences Between The Actual And Desired Institutional Support According to Main Purpose of Using VLE.



6.4.1 Differences between the actual and desired institutional support according to academic staff who use VLE only for administrative purposes

Table 4.93. Differences Between The Actual And Desired Institutional Support Items (As Who Use VLE Only For Administrative Purposes)

No	Sec.	Item		M	t	sig	No	Sec.	Item			t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	2.46	20.30	0.00	23	Technical Training	Organising TP to enhance using ICT in teaching.	A	3.25	12.59	0.00
			D	4.55						D	4.43		
2		Stability of e-learning strategies.	A	2.30	22.06	0.00	24		Organising TP to increase course management skills in the VLE.	A	3.11	12.25	0.00
			D	4.51						D	4.47		
3		Clarifying e-learning importance in the university strategic vision.	A	2.70	17.43	0.00	25		Organising TP to increase course content management skills in the VLE.	A	2.72	15.62	0.00
			D	4.34						D	4.52		
4		Representing of academic staff in e-learning planning.	A	2.30	21.31	0.00	26		Organising TP to increase my skills in using communication tools in the VLE.	A	2.46	25.82	0.00
			D	4.31						D	4.28		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	2.14	23.06	0.00	27		Organising TP to increase students' progress tracking skills in the VLE.	A	2.20	23.82	0.00
			D	4.32						D	4.30		
6		The provided support is keeping pace with e-learning programmes growth.	A	1.98	22.66	0.00	28		Organising TP to increase assessments skills in the VLE.	A	2.32	24.27	0.00
			D	4.71						D	4.44		
7		Enlightening AS about e-learning educational opportunities.	A	2.32	20.88	0.00	29	Pedagogical Training	Organising TP to improve instructional design skills.	A	2.28	22.56	0.00
			D	4.69						D	4.56		
8		Identifying the barriers of involvement in e-learning.	A	2.14	23.89	0.00	30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	2.15	21.48	0.00
			D	4.69						D	4.56		
9		E-learning initiatives are driven by researches' findings.	A	2.53	17.63	0.00	31		Organising TP to enhance the interaction through e-learning.	A	2.21	22.02	0.00
			D	4.48						D	4.48		
10		Departments' role in	A	2.41	11.94	0.00	32		Organising TP to increase	A	2.22	22.90	0.00

		encouraging AS to participate in e-learning.	D	3.66						students' engagement through e-learning.	D	4.36		
11	Technical Support	Providing reliable technical infrastructure.	A	3.02	16.25	0.00		33		Organising TP to improve creating learner-centred learning strategies.	A	2.25	19.76	0.00
			D	4.76							D	4.11		
12		Offering user-friendly Virtual Learning Environments (VLE).	A	2.65	16.80	0.00		34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	2.10	22.77	0.00
			D	4.53							D	4.66		
13		Ensuring continuous access to the VLE.	A	2.36	17.69	0.00		35	TP Flexibility	Designing TP based on accurate need assessments.	A	1.84	25.47	0.00
			D	4.57							D	4.61		
14		Running a 24X7 help desk to provide support.	A	2.07	21.95	0.00		36		TP diversity in terms of means (e.g. face-to-face and online).	A	2.11	20.46	0.00
			D	4.64							D	4.21		
15		Running units for educational multimedia production.	A	1.99	21.66	0.00		37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	2.12	21.72	0.00
			D	4.35							D	4.49		
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs.etc).	A	3.31	10.20	0.00		38		Organising TP in fixable dates.	A	2.29	21.82	0.00
			D	4.54							D	4.61		
17	Pedagogical Support	Facilitating cooperation with instructional designers.	A	2.14	25.40	0.00		39		TP diversity in terms of durations (short term-long term).	A	2.29	24.27	0.00
			D	4.14							D	4.54		
18		Providing authoring tools to design e-learning courses.	A	2.64	16.35	0.00		40	Institutional Incentives	Developing monetary compensation schemes.	A	2.21	20.90	0.00
			D	4.36							D	4.52		
19		Providing prepared pedagogical templates for e-learning course.	A	2.26	20.62	0.00		41		Adjusting traditional workload credits.	A	1.79	24.80	0.00
			D	4.44							D	4.68		
20		Running pedagogical consultations units.	A	2.05	26.05	0.00		42		Appreciating academic staff participation in e-learning.	A	2.45	15.62	0.00
			D	4.45							D	4.26		
21		Producing guides to increase courses' pedagogical quality.	A	2.14	25.25	0.00		43		Taking into account academic staff efforts in the promotion processes.	A	2.40	14.61	0.00
			D	4.49							D	3.85		
22		Establishing online communities to share e-learning experiences.	A	2.16	20.18	0.00		44		Arranging funded travel to attend e-learning events.	A	3.09	13.86	0.00
			D	4.11							D	4.46		

All Actual (Administrative Purposes Only)	2.36	28.66	0.00
All Desired (Administrative Purposes Only)	4.43		

Table 4.93 presents a comparison of academic staff's rating for actual and desired institutional support according to their main purpose of using VLEs; t-test results indicate that the mean of desired institutional support for academic staff who use VLEs only for administrative purposes (M= 4.43) is *significantly* higher than that for actual institutional support (M= 2.36); $t(120)= 28.66$, $p<0.05$. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all forty-four items. It can be seen that the widest gap reported by academic staff who stated they use VLEs only for administrative purposes is that between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 1.79 and M=4.68). Meanwhile, the smallest gap is indicated for Item 23, "Organising TPs to enhance the use of ICT in teaching" (M=4.43 and M=3.25).

In addition, as can be seen in Table 4.94, t-test results indicate statistically *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, academic staff who use VLEs only for administrative purposes reported that the widest gap was in section 6, "training flexibility" (M= 2.13 and M=4.49). On the other hand, they reported that the smallest gap was in section 4, "technical training" (M= 2.68 and M=4.41).

Table 4.94. Differences Between The Actual And Desired Institutional Support Sections (As Who Use VLE Only For Administrative Purposes)

No	Section		M	t	sig
1	Supportive Institutional Practices	A	2.33	26.55	0.00
		D	4.43		
2	Technical Support	A	2.57	21.06	0.00
		D	4.56		
3	Pedagogical Support	A	2.23	27.30	0.00
		D	4.33		
4	Technical Training	A	2.68	22.04	0.00
		D	4.41		
5	Pedagogical Training	A	2.20	24.99	0.00
		D	4.45		
6	Training Programmes Flexibility	A	2.13	26.01	0.00
		D	4.49		
7	Institutional Incentives	A	2.39	25.02	0.00
		D	4.35		
All (Adm)		A	2.36	28.66	0.00
		D	4.43		

6.4.2 Differences between the actual and desired institutional support according to academic staff who use VLE only for teaching purposes

Table 4.95. Differences Between The Actual And Desired Institutional Support Items (As Who Use VLE Only For Teaching Purposes)

No	Sec.	Item		M	t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	2.50	11.43	0.00
			D	4.44		
2		Stability of e-learning strategies.	A	2.29	18.11	0.00
			D	4.56		
3		Clarifying e-learning importance in the university strategic vision.	A	2.77	10.83	0.00
			D	4.17		
4		Representing of academic staff in e-learning planning.	A	2.50	14.31	0.00
			D	4.54		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	1.90	19.79	0.00
			D	4.46		
6		The provided support is keeping pace with e-learning programmes growth.	A	1.98	19.57	0.00
			D	4.83		
7		Enlightening AS about e-learning educational opportunities.	A	2.04	15.68	0.00
			D	4.67		
8		Identifying the barriers of involvement in e-learning.	A	1.75	22.17	0.00
			D	4.65		
9		E-learning initiatives are driven by researches' findings.	A	2.27	13.76	0.00
			D	4.65		
10		Departments' role in encouraging AS to participate in e-learning.	A	2.44	7.77	0.00
			D	3.67		
11	Technical Support	Providing reliable technical infrastructure.	A	3.23	8.19	0.00
			D	4.77		
12		Offering user-friendly Virtual Learning Environments (VLE).	A	2.79	10.54	0.00
			D	4.75		
13		Ensuring continuous access to the VLE.	A	2.40	14.23	0.00
			D	4.73		
14		Running a 24X7 help desk to provide support.	A	1.69	24.52	0.00
			D	4.77		
15		Running units for educational multimedia production.	A	2.00	15.84	0.00
			D	4.65		
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs .etc).	A	3.71	6.00	0.00
			D	4.75		
17	Pedagogical Support	Facilitating cooperation with instructional designers.	A	2.19	16.47	0.00
			D	4.06		
18		Providing authoring tools to design e-learning courses.	A	2.79	9.74	0.00
			D	4.38		
19		Providing prepared pedagogical	A	2.25	13.41	0.00

No	Sec.	Item			t	sig
23	Technical Training	Organising TP to enhance using ICT in teaching.	A	3.48	7.11	0.00
			D	4.58		
24		Organising TP to increase course management skills in the VLE.	A	3.08	8.31	0.00
			D	4.65		
25		Organising TP to increase course content management skills in the VLE.	A	2.81	8.91	0.00
			D	4.63		
26		Organising TP to increase my skills in using communication tools in the VLE.	A	2.60	16.35	0.00
			D	4.38		
27		Organising TP to increase students' progress tracking skills in the VLE.	A	2.21	17.00	0.00
			D	4.38		
28		Organising TP to increase assessments skills in the VLE.	A	2.27	18.69	0.00
			D	4.56		
29	Pedagogical Training	Organising TP to improve instructional design skills.	A	2.25	15.21	0.00
			D	4.77		
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	2.19	13.23	0.00
			D	4.65		
31		Organising TP to enhance the interaction through e-learning.	A	2.23	15.10	0.00
			D	4.77		
32		Organising TP to increase students' engagement through e-learning.	A	2.19	14.90	0.00
			D	4.50		
33		Organising TP to improve creating learner-centred learning strategies.	A	2.08	14.98	0.00
			D	4.13		
34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	2.10	14.71	0.00
			D	4.75		
35	TP Flexibility	Designing TP based on accurate need assessments.	A	1.96	18.45	0.00
			D	4.81		
36		TP diversity in terms of means (e.g. face-to-face and online).	A	2.21	10.24	0.00
			D	4.06		
37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	2.08	13.80	0.00
			D	4.58		
38		Organising TP in fixable dates.	A	2.21	14.11	0.00
			D	4.73		
39		TP diversity in terms of durations (short term-long term).	A	2.27	13.49	0.00
			D	4.46		
40	ution al Incen	Developing monetary compensation schemes.	A	2.52	10.87	0.00
			D	4.67		
41		Adjusting traditional workload	A	1.71	24.32	0.00

		templates for e-learning course.	D	4.54					credits.	D	4.83		
20		Running pedagogical consultations units.	A	1.88	19.79	0.00		42	Appreciating academic staff participation in e-learning.	A	2.94	7.14	0.00
			D	4.44						D	4.27		
21		Producing guides to increase courses' pedagogical quality.	A	2.13	14.27	0.00		43	Taking into account academic staff efforts in the promotion processes.	A	2.63	6.79	0.00
			D	4.56						D	3.60		
22		Establishing online communities to share e-learning experiences.	A	2.13	10.68	0.00		44	Arranging funded travel to attend e-learning events.	A	3.52	8.44	0.00
			D	4.08						D	4.54		

All Actual (Teaching Purposes Only)	2.39	17.20	0.00
All Desired (Teaching Purposes Only)	4.51		

Table 4.95 presents a comparison of the rating of academic staff for actual and desired institutional support according to their main purpose of using VLEs; t-test results indicate that the mean of desired institutional support for academic staff who use VLEs only for teaching purposes (M= 4.51) is *significantly* higher than that for the actual institutional support (M= 2.39); t(120)= 17.20, p<0.05. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all forty four items. It can be seen that the widest gap reported by academic staff who stated that they use VLEs only for teaching purposes is that between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 1.71 and M=4.83). Meanwhile, the smallest gap is indicated for Item 43, "Taking into account academic staff efforts in the promotion process" (M=2.63 and M=3.60).

In addition, as can be seen in Table 4.96, t-tests results indicate statistically *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, academic staff who use VLEs only for teaching purposes reported that the widest gap was in section 5, "pedagogical training" (M= 2.17 and M=4.59). On the other hand, they reported that the smallest gap was in section 7, "institutional incentives" (M= 2.66 and M=4.38).

Table 4.96. Differences Between The Actual And Desired Institutional Support Sections (As Who Use VLE Only For Teaching Purposes)

No	Section		M	t	sig
1	Supportive Institutional Practices	A	2.24	20.06	0.00
		D	4.46		
2	Technical Support	A	2.64	14.11	0.00
		D	4.74		
3	Pedagogical Support	A	2.23	18.03	0.00
		D	4.34		
4	Technical Training	A	2.74	13.94	0.00
		D	4.53		
5	Pedagogical Training	A	2.17	15.84	0.00
		D	4.59		
6	Training Programmes Flexibility	A	2.15	15.50	0.00
		D	4.53		
7	Institutional Incentives	A	2.66	14.33	0.00
		D	4.38		

All (Tech)	A	2.39	17.20	0.00
	D	4.51		

6.4.3 Differences between the actual and desired institutional support according to academic staff who use VLE for administrative and teaching purposes

Table 4.97. Differences Between The Actual And Desired Institutional Support Items (As Who Use VLE For Administrative and Teaching Purposes)

No	Sec.	Item		M	t	sig	No	Sec.	Item			t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	2.90	17.78	0.00	23	Technical Training	Organising TP to enhance using ICT in teaching.	A	3.54	10.93	0.00
			D	4.61						D	4.49		
2		Stability of e-learning strategies.	A	2.62	25.25	0.00	24		Organising TP to increase course management skills in the VLE.	A	3.38	12.25	0.00
			D	4.67						D	4.45		
3		Clarifying e-learning importance in the university strategic vision.	A	3.14	17.46	0.00	25		Organising TP to increase course content management skills in the VLE.	A	3.14	15.98	0.00
			D	4.48						D	4.55		
4		Representing of academic staff in e-learning planning.	A	2.64	23.26	0.00	26		Organising TP to increase my skills in using communication tools in the VLE.	A	2.90	26.64	0.00
			D	4.55						D	4.56		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	2.45	26.98	0.00	27		Organising TP to increase students' progress tracking skills in the VLE.	A	2.64	26.00	0.00
			D	4.52						D	4.54		
6		The provided support is keeping pace with e-learning programmes growth.	A	2.35	26.92	0.00	28		Organising TP to increase assessments skills in the VLE.	A	2.75	26.69	0.00
			D	4.74						D	4.70		
7		Enlightening AS about e-learning educational opportunities.	A	2.52	23.53	0.00	29	Pedagogical Training	Organising TP to improve instructional design skills.	A	2.45	26.83	0.00
			D	4.60						D	4.76		
8		Identifying the barriers of involvement in e-learning.	A	2.32	28.32	0.00	30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	2.47	24.60	0.00
			D	4.72						D	4.64		
9		E-learning initiatives are driven by researches' findings.	A	2.80	21.83	0.00	31		Organising TP to enhance the interaction through e-learning.	A	2.56	26.81	0.00
			D	4.55						D	4.62		
10		Departments' role in encouraging AS to participate in e-learning.	A	2.93	12.76	0.00	32		Organising TP to increase students' engagement through e-learning.	A	2.48	25.10	0.00
			D	3.87						D	4.51		
11	Technical Support	Providing reliable technical infrastructure.	A	3.51	13.90	0.00	33		Organising TP to improve creating learner-centred learning strategies.	A	2.38	26.31	0.00
			D	4.76						D	4.40		
12		Offering user-friendly Virtual Learning Environments (VLE).	A	3.05	17.13	0.00	34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	2.42	27.12	0.00
			D	4.61						D	4.74		
13		Ensuring continuous access to the VLE.	A	2.75	20.17	0.00	35	TP Flexibility	Designing TP based on accurate need assessments.	A	2.29	27.08	0.00
			D	4.61						D	4.72		
14		Running a 24X7 help desk to provide support.	A	2.21	30.84	0.00	36		TP diversity in terms of means (e.g. face-to-face and online).	A	2.55	22.07	0.00
			D	4.68						D	4.36		
15		Running units for educational multimedia production.	A	2.30	25.69	0.00	37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	2.55	21.07	0.00
			D	4.49						D	4.45		
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs, etc).	A	3.57	11.92	0.00	38		Organising TP in fixable dates.	A	2.57	24.50	0.00
			D	4.66						D	4.61		
17	Pedagogical Support	Facilitating cooperation with instructional designers.	A	2.40	31.99	0.00	39		TP diversity in terms of durations (short term-long term).	A	2.65	22.97	0.00
			D	4.40						D	4.47		
18		Providing authoring tools to design e-learning courses.	A	2.97	15.80	0.00	40	Institutional Incentives	Developing monetary compensation schemes.	A	2.74	17.56	0.00
			D	4.48						D	4.56		
19		Providing prepared pedagogical templates for e-learning course.	A	2.61	20.82	0.00	41		Adjusting traditional workload credits.	A	2.12	28.40	0.00
			D	4.47						D	4.72		
20		Running pedagogical consultations units.	A	2.36	27.16	0.00	42		Appreciating academic staff participation in e-learning.	A	2.83	12.94	0.00
			D	4.63						D	4.17		
21		Producing guides to increase courses' pedagogical quality.	A	2.56	21.06	0.00	43		Taking into account academic staff efforts in the promotion processes.	A	2.84	11.65	0.00
			D	4.45						D	3.95		
22		Establishing online communities to share e-learning experiences.	A	2.64	17.75	0.00	44		Arranging funded travel to attend e-learning events.	A	3.47	12.93	0.00
			D	4.25						D	4.59		

All Actual (Teaching and Administrative purposes)	2.71	30.84	0.00
All Desired (Teaching and Administrative purposes)	4.53		

Table 4.97 presents a comparison of the rating of academic staff for actual and desired institutional support according to their main purpose of using VLEs; t-test results indicate that the mean of desired institutional support for academic

staff who use VLEs for administrative and teaching purposes (M= 4.53) is *significantly* higher than that for the actual institutional support (M= 2.71); t(173)= 30.84, p<0.05. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all forty-four items. It can be seen that the widest gap reported by academic staff who stated they use VLEs for both teaching and administrative purposes is that between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 2.12 and M=4.72). Meanwhile, the smallest gap is indicated for Item 10, "Taking into account academic staff's efforts in the promotion process" (M=2.93 and M=3.87).

In addition, as can be seen in Table 4.98 t-tests results indicate statistically *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, academic staff who use VLEs for both teaching and administrative purposes reported that the widest gap was in section 5, "pedagogical training" (M= 2.46 and M=4.61). On the other hand, they reported that the smallest gap was in section 4, "technical training" (M= 3.06 and M=4.55).

Table 4.98. Differences Between The Actual And Desired Institutional Support Sections (As Who Use VLE For Administrative and Teaching Purposes)

No	Section		M	t	sig
1	Supportive Institutional Practices	A	2.67	29.50	0.00
		D	4.53		
2	Technical Support	A	2.90	24.80	0.00
		D	4.64		
3	Pedagogical Support	A	2.59	27.12	0.00
		D	4.45		
4	Technical Training	A	3.06	22.89	0.00
		D	4.55		
5	Pedagogical Training	A	2.46	29.97	0.00
		D	4.61		
6	Training Programmes Flexibility	A	2.52	27.61	0.00
		D	4.52		
7	Institutional Incentives	A	2.80	20.46	0.00
		D	4.40		
All (Ad + \tech)		A	2.71	30.84	0.00
		D	4.53		

6.4.4 Differences between the actual and desired institutional support according to academic staff who do not use VLEs

Table 4.99. Differences Between The Actual And Desired Institutional Support Items (As Who Use VLE For Administrative and Teaching Purposes)

No	Sec.	Item		M	t	sig
1	Supportive	Clarity of e-learning strategies.	A	1.93	28.88	0.00
			D	4.13		
2		Stability of e-learning strategies.	A	1.80	31.62	0.00
			D	4.18		

No	Sec.	Item			t	sig
23	Technical Training	Organising TP to enhance using ICT in teaching.	A	2.61	18.95	0.00
			D	4.37		
24		Organising TP to increase course management skills in	A	2.40	19.10	0.00
			D	4.44		

										the VLE.					
3		Clarifying e-learning importance in the university strategic vision.	A D	2.18 3.94	25.84	0.00		25		Organising TP to increase course content management skills in the VLE.	A D	2.03 4.49	23.68	0.00
4		Representing of academic staff in e-learning planning.	A D	1.79 4.13	32.25	0.00		26		Organising TP to increase my skills in using communication tools in the VLE.	A D	1.82 3.96	41.02	0.00
5		Encouraging institutional discussion during e-learning initiatives phases.	A D	1.55 4.15	29.68	0.00		27		Organising TP to increase students' progress tracking skills in the VLE.	A D	1.54 3.92	41.72	0.00
6		The provided support is keeping pace with e-learning programmes growth.	A D	1.45 4.61	43.70	0.00		28		Organising TP to increase assessments skills in the VLE.	A D	1.77 4.35	43.97	0.00
7		Enlightening AS about e-learning educational opportunities.	A D	1.65 4.65	35.89	0.00		29	Pedagogical Training	Organising TP to improve instructional design skills.	A D	1.70 4.39	42.44	0.00
8		Identifying the barriers of involvement in e-learning.	A D	1.61 4.60	42.68	0.00		30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A D	1.46 4.36	41.14	0.00
9		E-learning initiatives are driven by researches' findings.	A D	1.89 4.36	28.03	0.00		31		Organising TP to enhance the interaction through e-learning.	A D	1.59 4.18	36.17	0.00
10		Departments' role in encouraging AS to participate in e-learning.	A D	1.74 3.14	17.68	0.00		32		Organising TP to increase students' engagement through e-learning.	A D	1.57 4.14	35.75	0.00
11	Technical Support	Providing reliable technical infrastructure.	A D	2.38 4.61	29.41	0.00		33		Organising TP to improve creating learner-centred learning strategies.	A D	1.48 3.80	30.68	0.00
12		Offering user-friendly Virtual Learning Environments (VLE).	A D	1.95 4.57	34.51	0.00		34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A D	1.52 4.59	34.60	0.00
13		Ensuring continuous access to the VLE.	A D	1.87 4.62	38.72	0.00		35	TP Flexibility	Designing TP based on accurate need assessments.	A D	1.38 4.57	42.53	0.00
14		Running a 24X7 help desk to provide support.	A D	1.51 4.76	47.84	0.00		36		TP diversity in terms of means (e.g. face-to-face and online).	A D	1.50 4.04	31.76	0.00
15		Running units for educational multimedia production.	A D	1.42 4.11	34.17	0.00		37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A D	1.53 4.25	31.30	0.00
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs , etc).	A D	2.80 4.51	18.15	0.00		38		Organising TP in fixable dates.	A D	1.68 4.49	34.70	0.00
17	Pedagogical Support	Facilitating cooperation with instructional designers.	A D	1.62 3.54	37.11	0.00		39		TP diversity in terms of durations (short term-long term).	A D	1.74 4.33	32.45	0.00
18		Providing authoring tools to design e-learning courses.	A D	2.04 4.18	29.07	0.00		40	Institutional Incentives	Developing monetary compensation schemes.	A D	1.81 4.32	27.80	0.00
19		Providing prepared pedagogical templates for e-learning course.	A D	1.74 4.25	31.02	0.00		41		Adjusting traditional workload credits.	A D	1.38 4.79	54.26	0.00
20		Running pedagogical consultations units.	A D	1.43 4.17	41.96	0.00		42		Appreciating academic staff participation in e-learning.	A D	2.21 4.10	26.11	0.00
21		Producing guides to increase courses' pedagogical quality.	A D	1.67 4.35	36.08	0.00		43		Taking into account academic staff efforts in the promotion processes.	A D	1.86 3.10	17.97	0.00
22		Establishing online communities to share e-learning experiences.	A D	1.64 3.99	31.25	0.00		44		Arranging funded travel to attend e-learning events.	A D	2.84 4.10	18.80	0.00

All Actual (Do not use VLE)	1.80	50.00	0.00
All Desired (Do not use VLE)	4.24		

Table 4.99 presents a comparison of academic staff's rating for actual and desired institutional support according to their main purpose of using VLEs; t-test results indicate that the mean of desired institutional support for academic staff who do not use VLEs (M= 4.24) is *significantly* higher than that of the actual institutional support (M= 1.80); $t(167)= 50.00$, $p<0.05$. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all forty four items. It can be seen that the widest gap reported by academic staff who stated they do not use VLEs is that between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 1.38 and M=4.79). Meanwhile, the smallest gap is indicated for Item 43,

"Taking into account academic staff's efforts in the promotion process" (M=1.86 and M=3.01).

In addition, as can be seen in Table 4.100, t-test results indicate *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, academic staff who do not use VLEs reported that the widest gap was in section 6, "training flexibility" (M= 1.57 and M=4.34). On the other hand, they reported that the smallest gap was in section 7, "institutional incentives" (M= 2.02 and M=4.08).

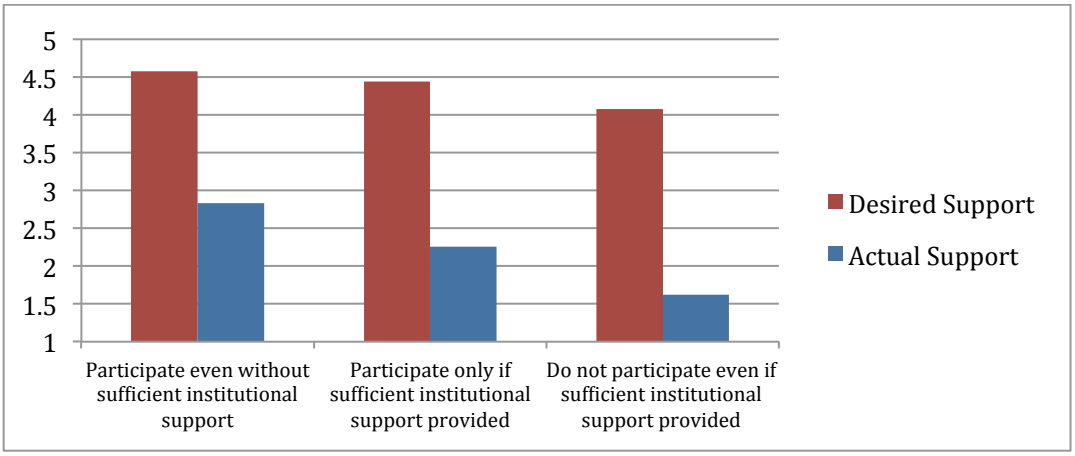
Table 4.100. Differences Between The Actual And Desired Institutional Support Items (As Who Use VLE For Administrative and Teaching Purposes)

No	Section		M	t	sig
1	Supportive Institutional Practices	A	1.76	48.53	0.00
		D	4.19		
2	Technical Support	A	1.99	43.22	0.00
		D	4.53		
3	Pedagogical Support	A	1.69	45.20	0.00
		D	4.08		
4	Technical Training	A	2.03	33.75	0.00
		D	4.26		
5	Pedagogical Training	A	1.55	44.98	0.00
		D	4.24		
6	Training Programmes Flexibility	A	1.57	40.54	0.00
		D	4.34		
7	Institutional Incentives	A	2.02	44.27	0.00
		D	4.08		
All (Do not use)		A	1.80	50.00	0.00
		D	4.24		

6.5: Are there statistically significant differences between the actual and desired institutional support in each category of attitude toward e-learning?

The following sections present the means and examine differences between the actual and desired institutional support for each category of attitude toward participation in e-learning (Figure 4.47).

Figure 4.47. Differences Between The Actual And Desired Institutional Support According to Attitude Towards Participation in e-learning.



6.5.1 Differences between the actual and desired institutional support according to academic staff who participate in e-learning even without sufficient institutional support)

Table 4.101. Differences Between The Actual And Desired Institutional Support Items (AS Who Participate In E-Learning Even Without Sufficient Institutional Support

No	Sec.	Item		M	t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	3.09	14.71	0.00
			D	4.65		
2		Stability of e-learning strategies.	A	2.69	19.81	0.00
			D	4.70		
3		Clarifying e-learning importance in the university strategic vision.	A	3.23	12.86	0.00
			D	4.52		
4		Representing of academic staff in e-learning planning.	A	2.73	19.26	0.00
			D	4.60		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	2.60	21.35	0.00
			D	4.52		
6		The provided support is keeping pace with e-learning programmes growth.	A	2.46	21.50	0.00
			D	4.77		
7		Enlightening AS about e-learning educational opportunities.	A	2.67	19.05	0.00
			D	4.60		
8		Identifying the barriers of involvement in e-learning.	A	2.49	21.98	0.00
			D	4.73		
9		E-learning initiatives are driven by researches' findings.	A	2.94	18.48	0.00
			D	4.60		
10		Departments' role in encouraging AS to participate in e-learning.	A	3.04	10.78	0.00
			D	4.02		
11	Technical Support	Providing reliable technical infrastructure.	A	3.63	11.00	0.00
			D	4.77		
12		Offering user-friendly Virtual Learning Environments (VLE).	A	3.09	14.54	0.00
			D	4.57		
13		Ensuring continuous access to the VLE.	A	2.94	15.38	0.00
			D	4.68		
14		Running a 24X7 help desk to provide support.	A	2.44	22.93	0.00
			D	4.66		
15		Running units for educational multimedia production.	A	2.48	20.68	0.00
			D	4.53		
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs, etc).	A	3.67	9.01	0.00
			D	4.67		
17	gic al	Facilitating cooperation with instructional designers.	A	2.48	27.22	0.00
			D	4.49		

No	Sec.	Item			t	sig
23	Technical Training	Organising TP to enhance using ICT in teaching.	A	3.63	11.25	0.00
			D	4.54		
24		Organising TP to increase course management skills in the VLE.	A	3.56	11.37	0.00
			D	4.56		
25		Organising TP to increase course content management skills in the VLE.	A	3.25	15.23	0.00
			D	4.59		
26		Organising TP to increase my skills in using communication tools in the VLE.	A	3.01	21.54	0.00
			D	4.57		
27		Organising TP to increase students' progress tracking skills in the VLE.	A	2.84	19.93	0.00
			D	4.60		
28		Organising TP to increase assessments skills in the VLE.	A	2.88	21.58	0.00
			D	4.68		
29	Pedagogical Training	Organising TP to improve instructional design skills.	A	2.69	21.57	0.00
			D	4.74		
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	2.69	20.89	0.00
			D	4.69		
31		Organising TP to enhance the interaction through e-learning.	A	2.69	23.33	0.00
			D	4.61		
32		Organising TP to increase students' engagement through e-learning.	A	2.66	21.01	0.00
			D	4.50		
33		Organising TP to improve creating learner-centred learning strategies.	A	2.58	20.93	0.00
			D	4.45		
34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	2.62	21.39	0.00
			D	4.73		
35	TP Flexibility	Designing TP based on accurate need assessments.	A	2.35	23.93	0.00
			D	4.72		
36		TP diversity in terms of means (e.g. face-to-face and online).	A	2.67	19.03	0.00
			D	4.48		
37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	2.70	19.02	0.00
			D	4.52		
38		Organising TP in fixable dates.	A	2.77	19.18	0.00
			D	4.72		
39		TP diversity in terms of durations (short term-long term).	A	2.77	19.95	0.00
			D	4.57		

18		Providing authoring tools to design e-learning courses.	A	3.02	13.84	0.00	40	Institutional Incentives	Developing monetary compensation schemes.	A	2.73	17.31	0.00
			D	4.53						D	4.59		
19		Providing prepared pedagogical templates for e-learning course.	A	2.73	18.87	0.00	41		Adjusting traditional workload credits.	A	2.14	27.14	0.00
			D	4.56						D	4.75		
20		Running pedagogical consultations units.	A	2.52	26.04	0.00	42		Appreciating academic staff participation in e-learning.	A	2.81	13.29	0.00
			D	4.62						D	4.35		
21		Producing guides to increase courses' pedagogical quality.	A	2.57	20.00	0.00	43		Taking into account academic staff efforts in the promotion processes.	A	2.85	11.82	0.00
			D	4.55						D	4.19		
22		Establishing online communities to share e-learning experiences.	A	2.66	15.90	0.00	44		Arranging funded travel to attend e-learning events.	A	3.43	11.60	0.00
			D	4.26						D	4.67		

All Actual (Participate even with lack of institutional support)	2.83	26.83	0.00
All Desired (Participate even with lack of institutional support)	4.58		

Table 4.101 presents a comparison of academic staff's rating for actual and desired institutional support according to their attitudes towards participation in e-learning VLEs; t-test results indicate that the mean of desired institutional support for academic staff who would participate in e-learning even with lack of sufficient institutional support (M= 4.58) is *significantly* higher than that for the actual institutional support (M= 2.38); $t(123)= 26.83$, $p<0.05$. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all forty-four items. It can be seen that the widest gap reported by academic staff who stated they would participate in e-learning even with lack of sufficient institutional support is the gap between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 2.14 and M=4.75). Meanwhile, the smallest gap is indicated for Item 23, "Organising TPs to enhance the use of ICT in teaching" (M=3.63 and M=4.54).

In addition, as can be seen in Table 4.102 t-tests results indicate statistically *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, academic staff who would participate in e-learning even with lack of sufficient institutional support reported that the widest gap was in section 5, "pedagogical training" (M= 2.65 and M=4.62). On the other hand, they reported that the smallest gap was in section 4, "technical training" (M= 3.19 and M=4.59).

Table 4.102. Differences Between The Actual And Desired Institutional Support Sections (AS Who Participate In E-Learning Even Without Sufficient Institutional Support

No	Section		M	t	sig
1	Supportive Institutional Practices	A	2.79	23.86	0.00
		D	4.57		
2	Technical Support	A	3.04	19.52	0.00
		D	4.65		
3	Pedagogical Support	A	2.66	25.31	0.00
		D	4.50		
4	Technical Training	A	3.19	20.37	0.00
		D	4.59		
5	Pedagogical Training	A	2.65	24.63	0.00

		D	4.62		
6	Training Programmes Flexibility	A	2.65	23.90	0.00
		D	4.60		
7	Institutional Incentives	A	2.79	19.87	0.00
		D	4.51		
All (Use even)		A	2.83	26.83	0.00
		D	4.58		

6.5.2 Differences between the actual and desired institutional support according to academic staff who participate in e-learning if sufficient institutional support were provided)

Table 4.103. Differences Between The Actual And Desired Institutional Support Items (AS Who Participate In E-Learning only if Sufficient Institutional Support Were Provided

No	Sec.	Item		M	t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	2.36	31.61	0.00
			D	4.48		
2		Stability of e-learning strategies.	A	2.23	41.08	0.00
			D	4.53		
3		Clarifying e-learning importance in the university strategic vision.	A	2.65	30.25	0.00
			D	4.26		
4		Representing of academic staff in e-learning planning.	A	2.28	35.67	0.00
			D	4.34		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	1.99	38.49	0.00
			D	4.36		
6		The provided support is keeping pace with e-learning programmes growth.	A	1.88	42.85	0.00
			D	4.73		
7		Enlightening AS about e-learning educational opportunities.	A	2.10	36.60	0.00
			D	4.68		
8		Identifying the barriers of involvement in e-learning.	A	1.94	45.46	0.00
			D	4.71		
9		E-learning initiatives are driven by researches' findings.	A	2.36	30.82	0.00
			D	4.53		
10		Departments' role in encouraging AS to participate in e-learning.	A	2.30	19.87	0.00
			D	3.55		
11	Technical Support	Providing reliable technical infrastructure.	A	3.01	25.81	0.00
			D	4.73		
12		Offering user-friendly Virtual Learning Environments (VLE).	A	2.62	28.89	0.00
			D	4.62		
13		Ensuring continuous access to the VLE.	A	2.30	34.39	0.00
			D	4.61		
14		Running a 24X7 help desk to provide support.	A	1.84	45.91	0.00
			D	4.72		
15		Running units for educational multimedia production.	A	1.85	39.69	0.00
			D	4.40		
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs , etc).	A	3.34	18.25	0.00
			D	4.61		
17	Pedagogical Support	Facilitating cooperation with instructional designers.	A	2.05	45.50	0.00
			D	4.05		
18		Providing authoring tools to design e-learning courses.	A	2.58	26.69	0.00
			D	4.38		
19		Providing prepared pedagogical templates for e-learning course.	A	2.15	33.39	0.00
			D	4.45		
20		Running pedagogical consultations units.	A	1.88	42.82	0.00
			D	4.46		
21		Producing guides to increase courses' pedagogical quality.	A	2.11	35.80	0.00
			D	4.46		
22		Establishing online communities to share e-learning experiences.	A	2.12	30.05	0.00
			D	4.12		

No	Sec.	Item			t	sig
23	Technical Training	Organising TP to enhance using ICT in teaching.	A	3.15	30.05	0.00
			D	4.46		
24		Organising TP to increase course management skills in the VLE.	A	2.91	19.19	0.00
			D	4.48		
25		Organising TP to increase course content management skills in the VLE.	A	2.60	20.74	0.00
			D	4.55		
26		Organising TP to increase my skills in using communication tools in the VLE.	A	2.37	25.07	0.00
			D	4.29		
27		Organising TP to increase students' progress tracking skills in the VLE.	A	2.03	43.32	0.00
			D	4.26		
28		Organising TP to increase assessments skills in the VLE.	A	2.21	44.84	0.00
			D	4.54		
29	Pedagogical Training	Organising TP to improve instructional design skills.	A	2.07	44.02	0.00
			D	4.65		
30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	1.94	42.32	0.00
			D	4.58		
31		Organising TP to enhance the interaction through e-learning.	A	2.06	39.51	0.00
			D	4.54		
32		Organising TP to increase students' engagement through e-learning.	A	2.03	39.51	0.00
			D	4.40		
33		Organising TP to improve creating learner-centred learning strategies.	A	1.99	40.39	0.00
			D	4.10		
34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	1.96	36.97	0.00
			D	4.69		
35	TP Flexibility	Designing TP based on accurate need assessments.	A	1.83	39.92	0.00
			D	4.69		
36		TP diversity in terms of means (e.g. face-to-face and online).	A	2.02	42.65	0.00
			D	4.13		
37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	2.01	33.37	0.00
			D	4.45		
38		Organising TP in fixable dates.	A	2.09	34.70	0.00
			D	4.62		
39		TP diversity in terms of durations (short term-long term).	A	2.17	39.04	0.00
			D	4.45		
40	Institutional Incentives	Developing monetary compensation schemes.	A	2.24	38.10	0.00
			D	4.54		
41		Adjusting traditional workload credits.	A	1.72	31.76	0.00
			D	4.76		
42		Appreciating academic staff participation in e-learning.	A	2.56	48.12	0.00
			D	4.20		
43		Taking into account academic staff efforts in the promotion processes.	A	2.39	22.88	0.00
			D	3.60		
44		Arranging funded travel to attend e-learning events.	A	3.23	20.92	0.00
			D	4.44		

All Actual (Participate only if institutional support provided)	2.26	47.81	0.00
All Desired (Participate only if institutional support provided)	4.44		

Table 4.103 presents a comparison of academic staff's rating for actual and desired institutional support according to their attitudes toward participation in e-learning; t-test results indicate that the mean of desired institutional support for academic staff who would participate in e-learning only if sufficient institutional support were provided (M= 4.44) is *significantly* higher than that for the actual institutional support (M= 2.26); t(303)= 47.81, p<0.05. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all forty-four items. It can be seen that the widest gap reported by academic staff who stated they would participate in e-learning only if sufficient institutional support were provided is that between the actual and desired support for Item 41, "Adjusting traditional workload credits" (M= 1.72 and M=4.76). Meanwhile, the smallest gap is indicated for Item 43, "Taking into account academic staff's efforts in the promotion process" (M=2.39 and M=3.60). In addition, as can be seen in Table 4.104, t-test results indicate statistically *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, academic staff who stated they would participate in e-learning only if sufficient institutional support were provided reported that the widest gap was in section 5, "pedagogical training" (M= 2.01 and M=4.49). On the other hand, they reported that the smallest gap was in section 7, "institutional incentives" (M= 2.43 and M=4.31).

Table 4.104. Differences Between The Actual And Desired Institutional Support Sections (AS Who Participate In E-Learning only if Sufficient Institutional Support Were Provided

No	Section		M	t	sig
1	Supportive Institutional Practices	A	2.21	47.66	0.00
		D	4.42		
2	Technical Support	A	2.49	39.09	0.00
		D	4.62		
3	Pedagogical Support	A	2.15	43.40	0.00
		D	4.32		
4	Technical Training	A	2.55	36.56	0.00
		D	4.43		
5	Pedagogical Training	A	2.01	46.20	0.00
		D	4.49		
6	Training Programmes Flexibility	A	2.02	42.83	0.00
		D	4.47		
7	Institutional Incentives	A	2.43	40.78	0.00
		D	4.31		
All (Use if)		A	2.26	47.81	0.00
		D	4.44		

6.5.3 Differences between the actual and desired institutional support according to academic staff who would not participate in e-learning even if sufficient institutional support)

Table 4.105. Differences Between The Actual And Desired Institutional Support Items (AS Who Would Not Participate In E-Learning Even if Sufficient Institutional Support Were Provided

No	Sec.	Item		M	t	sig	No	Sec.	Item			t	sig
1	Institutional Supportive Practices	Clarity of e-learning strategies.	A	1.73	22.77	0.00	23	Technical Training	Organising TP to enhance using ICT in teaching.	A	2.49	13.18	0.00
			D	3.90						D	4.31		
2		Stability of e-learning strategies.	A	1.61	20.38	0.00	24		Organising TP to increase course management skills in the VLE.	A	2.21	13.32	0.00
			D	3.89						D	4.37		
3		Clarifying e-learning importance in the university strategic vision.	A	1.97	19.56	0.00	25		Organising TP to increase course content management skills in the VLE.	A	1.87	16.66	0.00
			D	3.76						D	4.43		
4		Representing of academic staff in e-learning planning.	A	1.51	26.65	0.00	26		Organising TP to increase my skills in using communication tools in the VLE.	A	1.70	32.40	0.00
			D	4.04						D	3.79		
5		Encouraging institutional discussion during e-learning initiatives phases.	A	1.31	25.73	0.00	27		Organising TP to increase students' progress tracking skills in the VLE.	A	1.41	28.47	0.00
			D	4.06						D	3.76		
6		The provided support is keeping pace with e-learning programmes growth.	A	1.29	33.18	0.00	28		Organising TP to increase assessments skills in the VLE.	A	1.61	33.29	0.00
			D	4.51						D	4.14		
7		Enlightening AS about e-learning educational opportunities.	A	1.48	31.10	0.00	29	Pedagogical Training	Organising TP to improve instructional design skills.	A	1.59	28.69	0.00
			D	4.56						D	4.16		
8		Identifying the barriers of involvement in e-learning.	A	1.40	34.36	0.00	30		Organising TP to assist AS reconceptualising my role in e-learning environments.	A	1.36	24.59	0.00
			D	4.42						D	4.11		
9		E-learning initiatives are driven by researches' findings.	A	1.63	22.68	0.00	31		Organising TP to enhance the interaction through e-learning.	A	1.50	24.13	0.00
			D	4.12						D	3.94		
10		Departments' role in encouraging AS to participate in e-learning.	A	1.61	13.35	0.00	32		Organising TP to increase students' engagement through e-learning.	A	1.43	23.20	0.00
			D	2.92						D	3.98		
11	Technical Support	Providing reliable technical infrastructure.	A	1.99	28.73	0.00	33		Organising TP to improve creating learner-centred learning strategies.	A	1.29	21.10	0.00
			D	4.59						D	3.62		
12		Offering user-friendly Virtual Learning Environments (VLE).	A	1.62	30.31	0.00	34		Organising TP to guide to the best practices in blending face-to-face teaching and e-learning.	A	1.31	27.58	0.00
			D	4.54						D	4.54		
13		Ensuring continuous access to the VLE.	A	1.57	32.09	0.00	35	TP Flexibility	Designing TP based on accurate need assessments.	A	1.19	33.18	0.00
			D	4.57						D	4.41		
14		Running a 24X7 help desk to provide support.	A	1.29	47.36	0.00	36		TP diversity in terms of means (e.g. face-to-face and online).	A	1.31	21.62	0.00
			D	4.72						D	4.01		
15		Running units for educational multimedia production.	A	1.28	22.98	0.00	37		TP diversity in terms of forms (e.g. one-to-one and team-based).	A	1.33	22.15	0.00
			D	3.89						D	4.12		
16		Offering facilities to participate in e-learning (e.g. Laptops, tablets, computers labs , etc).	A	2.42	15.59	0.00	38		Organising TP in fixable dates.	A	1.59	22.76	0.00
			D	4.47						D	4.26		
17	Pedagogical Support	Facilitating cooperation with instructional designers.	A	1.48	22.03	0.00	39		TP diversity in terms of durations (short term-long term).	A	1.62	20.76	0.00
			D	3.21						D	4.22		
18		Providing authoring tools to design e-learning courses.	A	1.83	22.44	0.00	40	Institutional Incentives	Developing monetary compensation schemes.	A	1.74	15.13	0.00
			D	3.94						D	4.09		
19		Providing prepared pedagogical templates for e-learning course.	A	1.62	21.54	0.00	41		Adjusting traditional workload credits.	A	1.32	27.47	0.00
			D	3.96						D	4.70		
20		Running pedagogical consultations units.	A	1.23	31.17	0.00	42		Appreciating academic staff participation in e-learning.	A	2.14	15.46	0.00
			D	3.97						D	3.84		
21		Producing guides to increase courses' pedagogical quality.	A	1.52	27.93	0.00	43		Taking into account academic staff efforts in the promotion processes.	A	1.70	9.65	0.00
			D	4.20						D	2.80		
22		Establishing online communities to share e-learning experiences.	A	1.50	25.06	0.00	44		Arranging funded travel to attend e-learning events.	A	2.57	11.10	0.00
			D	3.94						D	3.81		

All Actual (Do not participate even if institutional support provided)	1.62	36.43	0.00
All Desired (Do not participate even if institutional support provided)	4.08		

Table 4.105 presents a comparison of the rating of academic staff for actual and desired institutional support according to their attitudes toward participation in e-learning; t-test results indicate that the mean for desired institutional support for academic staff who would not participate in e-learning even if sufficient

institutional support were provided (M= 4.08) is *significantly* higher than that of the actual institutional support (M= 1.62); t(89)= 36.43, p<0.05. Furthermore, t-test results indicate statistically *significant* differences between the actual and desired support for all forty-four items. It can be seen that the widest gap reported by academic staff who stated they would not participate in e-learning even if sufficient institutional support were provided is that between the actual and desired support for Item 14, "Running a 24/7 help desk to provide support" (M= 1.29 and M=4.72). Meanwhile, the smallest gap is indicated for Item 43, "Taking into account academic staff's efforts in the promotion process" (M=2.80 and M=1.70).

In addition, as can be seen in Table 4.106, t-test results indicate statistically *significant* differences for all seven sections. In terms of gaps between actual and desired institutional support sections, academic staff who stated they would not participate in e-learning even if sufficient institutional support were provided reported that the widest gap was in section 6, "training flexibility" (M= 1.41 and M=4.20). On the other hand, they reported that the smallest gap was in section 7, "institutional incentives" (M= 1.90 and M=3.85).

Table 4.106. Differences Between The Actual And Desired Institutional Support Sections (AS Who Would Not Participate In E-Learning Even if Sufficient Institutional Support Were Provided

No	Section		M	t	sig
1	Supportive Institutional Practices	A	1.55	38.62	0.00
		D	4.02		
2	Technical Support	A	1.69	36.66	0.00
		D	4.46		
3	Pedagogical Support	A	1.53	33.68	0.00
		D	3.87		
4	Technical Training	A	1.88	23.25	0.00
		D	4.13		
5	Pedagogical Training	A	1.41	29.01	0.00
		D	4.06		
6	Training Programmes Flexibility	A	1.41	28.30	0.00
		D	4.20		
7	Institutional Incentives	A	1.90	20.00	0.00
		D	3.85		
All (Do not use)		A	1.62	36.43	0.00
		D	4.08		

4.7. Summary

This study aimed to investigate the actual and desired institutional support (that which is and that which is desired) provided by universities to motivate their academic staff to adopt VLEs. Furthermore, the study compared the support

provided with that which is desired, and the gaps between the two, according to the academic staff's university, school, gender, their main purposes for using VLEs and their attitudes toward participation in e-learning.

The study which was carried out in five public universities in Saudi Arabia (n=518) indicated that institutional support is rarely provided by the universities (M=2.29). In addition, the study revealed insufficient supportive institutional practices (M=2.24 R=4), technical support (M=2.48 R=2), pedagogical support (M=2.16 R=5), technical training (M=2.59 R=1), pedagogical training (M=2.06 R=7), flexibility of training programmes (M=2.07 R=6) and institutional incentives (M=2.42 R=3). The study revealed statistically significant differences in academic staff's assessment of actual intuitional support according to their university, faculty, gender, main purpose and attitude toward participation in e-learning.

In terms of desired institutional support, the results indicated that the seven sections of support are highly desired (M=4.41). Academic staff confirmed the importance of supportive institutional practices (M=4.38 R=5), technical support (M=4.60 R=1), pedagogical support (M=4.29 R=6), technical training (M=4.42 R=4), pedagogical training (M=4.45 R=3), flexibility of training programmes (M=4.45 R=2) and institutional incentives (M=4.28 R=7). Also, the results indicated statistically significant differences in academic staff's assessment of desired institutional support according to their university, faculty, main purpose and attitude toward participation in e-learning.

In terms of gaps between actual and desired institutional support, t-test results revealed statistically significant differences between the actual and desired institutional support in the seven sections. According to academic staff, the widest gap between actual and desired support is in section five, "pedagogical training" (M= 2.06 and M=4.45). On the other hand, they reported the smallest gap in section four, "technical training" (M= 2.59 and M=4.42). The following table summarises the study results (Table 4.107).

Table 4.107. Summary of The Main Results

No	Question	The main findings	
1	**Actual Institutional**	1.1. Supportive Institutional Practices	Universities rarely provide Supportive Institutional Practices (M=2.24)
		1.2. Technical Support	Universities rarely provide Technical Support (M=2.48)
		1.3. Pedagogical	Universities rarely provide Pedagogical Support (M=2.16)

No	Question	The main findings	
	Support	Support	
		1.4. Technical Training	Universities rarely provide Technical Training (M=2.49)
		1.5. Pedagogical Training	Universities rarely provide Pedagogical Training (M=2.06)
		1.6. Training Flexibility	Universities rarely provide the required flexibility for training programmes (M=2.07)
		1.7. Institutional Incentives	Universities rarely provide Institutional Incentives (M=2.42)
		Actual Institutional Support	Universities rarely provide Institutional Support (M=2.29)
2	**Differences in the actual Institutional Support**	2.1. University	There are significant differences in actual institutional support according to university.
		2.2. Faculty	There are significant differences in actual institutional support according to faculty.
		2.3. Gender	There are significant differences in actual institutional support according to gender.
		2.4. Main Purpose	There are significant differences in actual institutional support according to main purpose of using VLE.
		2.5. Attitude	There are significant differences in actual institutional support according to attitude toward participation in e-learning.
3	**Desired Institutional Support**	3.1. Supportive Institutional Practices	The Supportive Institutional Practices are highly desired (M=4.38)
		3.1. Technical Support	The Technical Support is highly desired (M=4.60)
		3.2. Pedagogical Support	The Pedagogical Support is highly desired (M=4.29)
		3.3. Technical Training	The Technical Training is highly desired (M=4.42)
		3.4. Pedagogical Training	The Pedagogical Training is highly desired (M=4.45)
		3.5. Training Flexibility	Flexibility of training programmes is highly desired (M=4.45)
		3.7. Institutional Incentives	The Institutional Incentives are highly desired (M=4.28)
		Desired Institutional Support	The Institutional Support is highly desired (M=4.41)
4	**Differences in the desired Institutional Support**	4.1. University	There are significant differences in desired institutional support according to university.
		4.2. Faculty	There are significant differences in desired institutional support according to faculty.
		4.3. Gender	There are no significant differences in desired institutional support according to gender.
		4.4. Main Purpose	There are significant differences in desired institutional support according to main purpose of using VLE.
		4.5. Attitude	There are significant differences in desired institutional support according to attitude toward participation in e-learning.
5	**Differences between the actual and desired institutional support**	5.1. Supportive Institutional Practices	There is a significant difference between actual and desired Supportive Institutional Practices.
		5.2. Technical Support	There is a significant difference between actual and desired Technical Support.
		5.3. Pedagogical Support	There is a significant difference between actual and desired Pedagogical Support.
		5.4. Technical Training	There is a significant difference between actual and desired Technical Training.
		5.5. Pedagogical Training	There is a significant difference between actual and desired Pedagogical Training.
		5.6. Training Flexibility	There is a significant difference between actual and desired Training Flexibility
		5.7. Institutional Incentives	There is a significant difference between actual and desired Supportive Institutional Practices.
		Institutional Support	There is a significant difference between actual and desired Institutional Support.
6	**Differences between the actual and desired institutional support for each sub-variable**	6.1. University	There are significant differences between the actual and desired institutional support in each university.
		6.2. Faculty	There are significant differences between the actual and desired institutional support in each faculty.
		6.3. Gender	There are significant differences between the actual and desired institutional support in each gender.
		6.4. Main Purpose	There are significant differences between the actual and desired institutional support in each category of main purpose of using VLE.
		6.5. Attitude	There are significant differences between the actual and desired institutional support in each category of attitude toward participation in e-learning

Chapter Five : The Discussion Chapter

Chapter Five: The Discussion Chapter

5.1. Introduction

This study aims to rate the *actual* (that provided) and *desired* institutional support (that which should be provided) by five universities in Saudi Arabia to encourage academic staff to adopt Virtual Learning Environments (VLEs) (Questions 1 and 3). The academic staff were asked to rate the *actual* and *desired* support in terms of 44 items suggested by the literature which were categorised into seven sections: supportive institutional practices (ten items), technical support (six items), pedagogical support (six items), technical training (six items), pedagogical training (six items), flexibility of training programmes (five items) and institutional incentives (five items). Academic staff were asked to evaluate the *actual* presence of each item using a 5-point Likert scale (1 indicates that the item is *never* provided, 2 that it is *rarely* provided, 3 that it is *occasionally* provided, 4 that it is *frequently* provided and 5 that it is *always* provided). Furthermore, they were asked to evaluate the degree of their *desire* for the item (1 indicates that the item is *highly undesired*, 2 that it is *undesired*, 3 if they are *neutral* about the item, 4 that is *desired* and 5 if it is *highly desired*).

This chapter summarises, explains and explores the degree of compatibility or contrariety of the quantitative and qualitative results of this study with earlier studies. It presents and discusses the results in three main parts:

- The first part (5.2.) presents the academic staff's perceptions of the *actual* and *desired* institutional support and consists of seven sub-sections. Each sub-section includes a brief introduction of the section and its items, the results and discussion of the *actual* support, the results and discussion of the *desired* situation and finally the results and discussion of differences between the *actual* and *desired* situations.
- The second part (5.3) focuses on the differences in academic staff's perceptions of the *actual* and *desired* institutional support according to different variables (university, faculty, gender, main purpose for using VLE and attitude toward e-learning) and consists of five sub-sections, a section for each variable. The sub-section starts by presenting and discussing the differences in *actual* institutional support between the sub-

variables, *desired* institutional support between the sub-variables and finally the differences between the *actual* and *desired* institutional support for each sub-variable.

- The third part (5.4) presents a proposed institutional support model which is developed based on the quantitative data findings.

5.2. The actual, desired institutional support

5.2.1 What are the actual and desired Supportive institutional practices?

This section aims to investigate academic staff's opinions of the universities' behaviour and practices during the planning and implementation of e-learning initiatives. Academic staff were asked to rate *actual* and *desired* supportive institutional practices (*Questions 1.1 and 3.1*). These supportive practices demonstrate the institutions' commitment towards e-learning initiatives and includes ten supportive practices reported by the related literature: clarity of e-learning strategies (Graham *et al*, 2013; Moskal *et al*., 2013; Naidu, 2006; Orr *et al*., 2009), stability of e-learning strategies (Orr *et al*., 2009), clarifying e-learning importance in the university strategic vision (Orr *et al*., 2009), representing of academic staff in e-learning planning and implementation (Bower, 2001; Moskal *et al*., 2013; Roberts, 2008), encouraging institutional discussion during e-learning initiative phases (Moskal *et al*., 2013), providing support which keeps pace with e-learning programmes growth (Moser, 2007; Pirani *et al.*, 2004), enlightening academic staff on e-learning educational opportunities (Bower, 2001; Butler & Sellbom, 2002; Hixon *et al.*, 2012; Moskal *et al.*, 2013), identifying the barriers that hinder academic staff's participation in e-learning (Panda & Mishra, 2007; Wang *et al*., 2007), ensuring that e-learning initiatives are driven by research findings (Bennett *et al.*, 2006) and faculty/departments encouraging academic staff to participate in e-learning (Olcott & Wright, 1995; Orr *et al*., 2009; Roberts, 2008).

5.2.1.1. Actual supportive institutional practices:

For *actual* supportive institutional practices, academic staff stated that their universities *rarely* provide the required supportive institutional practices (M=2.24) (Table 4.5). In this section, academic staff reported that nine out of ten

support practices are *rarely* provided, with the only exception being that universities *occasionally* clarify the importance of e-learning in strategic vision (M = 2.67). These findings are compatible with studies which reported insufficient supportive institutional practices. For example, Orr *et al*. (2009) and Hardaker and Singh (2011) report lack of academic staff involvement in institutional discussions about e-learning initiatives. In their study, Hardaker and Singh (2011) found that academic staff were not represented or consulted during the development stages and initiatives were developed by senior management. In this sense, Templeton (2000) stated that academic staff showed concerns about e-learning initiatives that are developed by managerial staff with limited experience in teaching and learning. Furthermore, similar to Orr *et al.* (2009), academic staff reported lack of stability of e-learning strategies by responding with negative comments about short-term VLE implementation. In addition, academic staff showed their concern about universities' ability to fulfil the increasing demand for support that comes with the growth in e-learning. This result confirms Pirani *et al.*'s (2004) study which found that more than 70% of respondents indicated that the demand for institutional support is greater than their institutions' ability to provide this support.

These quantitative results are confirmed by the interviews. For example, an academic staff showed concerns about e-learning plans' clarity:

> *The university does not explain when we can use the VLE or in what proportion compared with traditional learning. Is blended learning optional or compulsory? Am I allowed to replace the traditional face-to-face lectures with online classes? Many questions need to be answered about the position of blended learning (Omar-Delta University).*

Another academic staff reports a continuous changing for the VLE as an indicator for insufficient stability:

> *During the last few years, the university has purchased and applied many VLEs such as BlackBoard, and JOUSOR. Yes, I encourage changing the VLEs if needed but training efforts and my skills should not be wasted (Sara-Alpha University).*

This concern supports Younie and Leask's (2013) findings about the importance of platforms' skills transferability. A leader provides a justification for changing VLEs:

> *The university wants to improve e-learning quality. Usually, we take such a decision based on academic staff's feedback on the previous VLE (Leader-Epsilon University).*

Another leader provides another explanation of using more than one VLE:

> *Sometimes we need to provide support for two VLEs at the same time. Beside our main VLE (BlackBoard), some academic staff use JOUSOUR VLE. This VLE is developed and supported by NCeL and Ministry of Higher Education as a national project (Leader-Alpha University).*

In addition, academic staff indicate insufficient involvement in e-learning plans development:

> *The e-learning plans are developed by e-learning deanships. In general, I can say the plans are developed in a closed circle. There are no communication channels to send my comments or suggestions to the deanship (Abdullah-Epsilon University).*

However, this conflicts with leaders' perceptions about academic staff representativeness during e-learning implementation:

> *We have 55 e-learning units. The supervisors (academic staff) of these units have monthly meetings to discuss the best practices. They are kind of workshops to exchange and discuss the plans (Leader-Epsilon University).*

In Addition, academic staff stated that universities provide limited knowledge about e-learning effectiveness in enhancing learning and teaching:

> *I have not read any study in the university that proves the VLE's impact on students or case studies that illustrate how the VLE is utilised effectively (Nada-Delta University).*

Another academic staff stated that insufficient awareness about e-learning benefits was a barrier for VLE adoption:

> *At the beginning, I did not intend to use it (the VLE) till I was asked to teach female students. I found it very useful to communicate with them. Now, I use it even when I teach male students (Ali-Alpha University).*

Leaders provide explanations about universities effort to investigate and overcome academic staff barriers. The most common approach is on-site visits:

> *We run an "e-learning convoy" because we feel there is a barrier preventing academic staff from using the VLE for the first time. If we can overcome this barrier and support academic staff in using the VLE for first time then they will automatically use it again and again. The "e-learning convoy" team visits faculties and academic staff in their offices to support them in using and exploring the VLE (Leader-Alpha University).*

In addition, leaders provide a different view about academic staff concerns for utilising research findings in e-learning initiatives development and implementation:

- *We have a department to observe newly published articles and to attend e-learning conferences to keep up with the new trends in the field (Leader-Alpha University).*
- *Deans of e-learning deanships attend annual workshops organized under the supervision of NCeL. During these workshops we share ideas about new directions. Likewise, the annual conference invites scholars from different countries to present their ideas and experiences (Leader-Delta University).*
- *We explore the best practices in the field and we customize them to make them appropriate to our context (Leader-Gamma University).*

Again, leaders provide different points of view about support programmes ability to meet the increasing demand that result from growth in e-learning:

> *We have plans to provide all the required support but we cannot provide everything in one stage… The support plans are implemented gradually according to the part of the year and the needs of academic staff (Leader-Epsilon University).*

Another leader provides a justification for the delay in support:

> *We have sufficient support plans but we cannot implement these plans without permission and support from various deanships in the university. The permissions and enabling the financial resources is complicated and require lengthy procedures (Leader-Beta University).*

On the other hand, the quantitative results showed a noticeable presence of the item related to clarifying the importance of e-learning in the strategic vision. These results are supported by qualitative findings since academic staff and leaders reported that universities use various sources to provide extensive information about e-learning initiatives.

- *The importance of e-learning is clarified by fliers, the university's newspaper, websites, Twitter accounts, etc. (Huda-Beta University).*
- *Yes, the university website includes mission, vision, values and strategic objectives and e-learning plans (Lama-Gamma University).*

One participant explained that the institutions were keen to provide this item:

- *They asked us to participate in e-learning by launching a course in the VLE. I think it is just to achieve some kind of web-presence. The university's goals could be driven by seeking a better reputation or a better rank (Ahmad-Beta University).*

This is supported to a large extent by Sharpe *et al*.'s (2006) findings in which academic staff were asked by their university to establish what they called a "web presence".

However, a leader confirmed that e-learning initiatives are driven by educational purposes:

> *Our primary purpose of using VLEs is to increase learning opportunities for students. No, it is not for universities' reputations or to reduce costs. They are adopted based on educational motivators (Leader-Beta University).*

5.2.1.2. Desired supportive institutional practices:

In terms of *desired* supportive practices, academic staff stated that nine of the suggested supportive institutional practices are *highly desired* (M = 4.38) (Table 4.34). These findings are in parallel with supportive institutional practices reported by earlier studies and provide additional evidence about the importance of these practices. For example, Orr *et al*. (2009) indicate that clarifying the role of e-learning in an institution's vision increases academic staff's awareness of the importance of their e-learning efforts in achieving the institution's goals. In terms of academic staff's influence on e-learning initiatives, various studies indicate the importance of academic staff representativeness during different e-learning stages (Bower, 2001; Moskal *et al*., 2013; Roberts, 2008). Moskal *et al*. (2013) highlight the importance of academic staff's involvement in discussions related to e-learning initiatives in minimising their concerns about top-down initiatives. These concerns arise from the potential gap between academic staff and administrators regarding their motivation and efforts in regard to e-learning (Ocak, 2011). Furthermore, the results are

consistent with previous studies which confirm the importance of developing positive perceptions among academic staff of the impact of ICT on teaching and learning and emphasising the pedagogical quality of e-learning courses (Bower, 2001; Butler & Sellbom, 2002; Hixon *et al*., 2012; Moskal *et al*., 2013). Panda and Mishra (2007) and Wang *et al.* (2007) highlight that investigating and removing institutional and personal barriers that influence academic staff is a critical factor in facilitating their participation in e-learning. In addition, the results confirmed the importance of utilising researches' findings to drive e-learning initiatives. For example, Bennett et al. (2006) state that research findings provide effective implementation strategies. In the interviews, Academic staff indicated the importance of utilising research findings in increasing academic staff awareness about e-learning impacts on learning:

> *It is a very good idea to convince academic staff to carry out semi-experimental studies that compare between students' learning outcomes in traditional groups and in a pedagogically designed environment (Nada-Delta University).*

Despite the fact that the results revealed that nine out of ten items in this section were rated as *highly desired*, academic staff emphasised the importance of keeping pace with e-learning growth and support programmes by ranking this item as first in this section (M = 4.70). This finding confirms Moser's (2007) findings that universities' failure in providing sufficient support at the appropriate time has a considerable negative impact on the different categories of e-learning adopters.

On the other hand, the importance of faculty/departments leaderships' awareness and recognition of the required time and effort to design, deliver and teach online courses is confirmed by many studies (Olcott & Wright, 1995; Roberts, 2008; Orr *et al*., 2009). For example, Olcott and Wright (1995) clarify that scheduling teaching tasks and coordinating training events are important contributions that could be offered by the faculty's/department's leadership. This study confirms the importance of departments' role.

An academic staff member refers to the role that could be carried out by departments, saying:

> *Departments can play an important role in communicating with high-level administration to purchase specific requirements for our subjects such as digital content, or special software (Abdullah-Epsilon University).*

One leader provides another contribution for departments to address pedagogical needs:

> *Our training programmes focus on technical skills. The university is large and there are hundreds of different specific academic disciplines. It is difficult for us to cover these disciplines and their pedagogical needs. The departments provide a valuable contribution in this context (Leader-Alpha University).*

However, noticeably academic staff expressed less desire for this type of support compared with the other items (M = 3.55). This could be explained that academic staff can see the departments' role as a source of pressure:

> *I teach online because I feel it improves my students' learning in the course. It provides an additional opportunity to interact with materials. No need for the department to criticise or control my e-learning efforts (Ali-Alpha University).*

Academic staff members refer to other supportive institutional practices related to marketing and increasing the awareness about e-learning initiatives:

- *I developed awareness about e-learning by myself. No institutional level effort to advertise e-learning. I feel it is a marginal effort (Reema-Epsilon University).*
- *The university needs to make academic staff aware of the initiative before the implementation phase (Hassan-Gamma University).*
- *Often I discover that an e-learning initiative has already started in my university through a report or an article in national newspapers or from Twitter accounts. It is critical for universities to assign an awareness phase before implementation to explain and introduce an initiative (Ali-Alpha University).*
- *I am enthusiastic to use VLEs but I think students do not have a positive attitude toward using them. There is no supportive culture within the university regarding the use of VLEs in daily activities (Omar-Delta University).*

An academic staff member suggested establishing legal consultation units:

There are no clear units that provide legal advice such as copyrights issues. Sometimes, I need to download and modify video clips from YouTube or upload an article in the content page and I am not sure whether this action is legal or not (Reema-Epsilon University).

Another ethical issue suggested by academic staff to ensure equity in e-learning:

- *I feel concerned that only students who own laptops, iPads or smartphones can access the content in the VLE. This idea let me think carefully. I want to make sure all my students have the same chance to access. The university should provide or lend students or help them to own these gadgets (Open question-Delta University).*
- *I use the VLE to receive assignments from my female students. I think they may have fewer opportunities to enroll in training programmes using VLEs. The female campuses close earlier and there is no time for training programmes during the day. Why do universities not allocate a course for e-learning or VLEs in the foundation year? (Ali-Alpha University).*

5.2.1.3. Differences between actual and desired supportive institutional practices

Question 5.1 aimed to find out if there are significant differences between *actual* and *desired* supportive institutional practices. As can be seen from Table 4.62, paired t-test results revealed differences between *actual* and *desired* institutional support in this section (A.M = 2.24, D.M = 4.38). According to the items' means, the highest gap between actual and desired support in this section appears in institutional support programmes' ability to keep pace with e-learning growth (A.M = 1.92, D.M = 4.70). Meanwhile, the lowest gap appears in the academic staff's rating of the *actual* and *desired* roles of faculty/departments in encouraging them to participate in e-learning (A.M = 2.36, D.M = 3.55).

5.2.2 What are the actual and desired technical support?

The technical support section aims to evaluate procedures and approaches that are already followed or should be followed by the universities to ensure seamless and continuous access to the Virtual Learning Environment (VLE). In this section, academic staff were asked to rate the *actual* and *desired* technical support (*Questions 1.2 and 3.2*). This section consists of six types of support

reported by the related literature: providing reliable technical infrastructure (Moskal *et al*., 2013), offering user-friendly VLEs (Porter *et al.,* 2014; Wang *et al*., 2013), ensuring continuous access to the VLE for academic staff and students (McGill *et al*., 2014; Moskal *et al.*, 2013; Pirani *et al.*, 2004), running a 24/7 help desk to provide technical support (Pirani *et al.*, 2004), running units for educational multimedia production (Wolcott, 1998; Moser, 2007) and offering facilities to encourage participation in e-learning (e.g. tablets, laptops, computers labs) (Panda & Mishra 2007).

5.2.2.1 Actual technical support :

In regard to *actual* technical support, academic staff stated that their universities *rarely* provide the required technical support (M = 2.48) (Table 4.6). However, they stated that their universities *occasionally* provide facilities to encourage them to participate in e-learning (e.g. tablets, laptops, computers labs) (M = 3.26) and reliable technical infrastructure which make these types of support the highest available support in this section. On the other hand, academic staff expressed considerable lack of 24/7 technical support (M = 1.89) which put this item lowest for technical support provided by the universities.

Likewise, qualitative findings refer to instant technical support. For example, an academic staff member says:

> *When I use the VLE after 2:30 PM (when office staff in the university finish for the day), I do not feel I am supported, (I) feel I am isolated. There is a Twitter account and phone number for technical support but they are not working (Lama-Gamma University).*

In this context, academic staff expressed concerns about feeling being isolated and not supported:

> *My colleague offered to provide a synchronous lecture for his students through the VLE. Suddenly, a technical problem with the sound occurred and he had to cancel the lecture. When this situation comes into my mind, I put aside this idea (Omar-Delta University).*

Another academic staff refers to insufficient technical support for students as well and he showed his concerns about doing this role:

> *Sometimes I try to help students to solve technical problems. This part of online teaching is a time-consuming activity (Ahmad-Beta University).*

These findings of academic staff's perceptions of inadequate technical support are similar to those of previous studies that aimed to identify barriers to adopting e-learning in which academic staff cited insufficient technical support as a common barrier in many studies (Al-Sonaidi *et al.*, 2009; Hiltz *et al.*, 2007; Naidu, 2005; Panda & Mishra, 2007; Schifter, 2000).

However, leaders stated that they provide the required technical support by establishing departmental units to provide the required technical support:

> *We are a huge university with many campuses and facilities. Thus we established five main units to provide the technical support (Leader-Alpha University).*

Or by allocating online support teams:

> *We provide instant support when academic staff are teaching their students. Our support teams remain online while academic staff are online (Leader-Epsilon University).*

5.2.2.2 Desired technical support:

In terms of *desired* technical support, academic staff confirmed the importance of technical support by rating this section as *highly desired* (M = 4.60) (Table 4.35). Academic staff stated that all the items in this section are *highly desired*, however they cited providing reliable technical infrastructure as the highest priority (M = 4.72). On the other hand, less desire was reported for running units for educational multimedia production than for the other items in this section (M = 4.35) (Table 4.35). Again, the findings agree with earlier research which confirms the role of technical support in enhancing academic staff's perceptions about system quality and service quality as important components in theories and models which have a positive impact on e-learning adoption (Al-Busaidi & Al-Shihi, 2012; Lee, 2008; Wang & Wang, 2009). Furthermore, allocating teams to provide technical support allows academic staff to concentrate on pedagogical rather than technical issues (Orr *et al.*, 2009; Templeton, 2000).

In addition, the results of this study agree with those of various studies which report that successful e-learning requires reliable technical infrastructure to ensure seamless and continuous access for both learners and academic staff (McGill *et al.*, 2014; Moskal *et al.*, 2013; Pirani *et al.*, 2004). An academic staff member confirms the importance of continuous access:

> *I suggest the university should provide every academic staff member with a router that allows him/her access to the Internet anywhere (Open question- Beta University).*

Likewise, it confirms those studies which refer to adopting user-friendly VLE where ease of use of the e-learning system is reported as an important component to e-learning adoption (Ngai *et al.*, 2007; Sanchez *et al.,* 2013).

A leader confirmed the importance of friendly-use VLE:

> *We developed an in-house VLE according to our academic staff's needs and preferences. It is now in test stage (Leader-Epsilon University).*

Furthermore, it is consistent with Pirani *et al*. (2004) in which academic staff gave 'providing a 24/7 help desk' the highest priority. In addition, the results of this study agree with Panda and Mishra (2007) who conclude that allowing easy access to computers and allocating university e-mail for academic staff have a positive impact on their attitudes toward e-learning. Furthermore, these results indicate the importance of providing multi-media production units, similar to the study by Wolcott (1998) which found that providing units to produce learning materials could assist reluctant academic staff to minimise their concerns about design issues.

Academic staff refer to two types of contributions that can be provided by these units:

- *I would like to use video clips from YouTube. They are very helpful but the problem is that most of these videos are in English. I wish there was a unit to translate these clips into Arabic (Sara-Alpha University).*
- *Sometimes I have ideas to increase interactivity or to add a video clip to my slides but I do not have the required skills. It would be beneficial to have a unit to help me to design and produce the presentations slides (Open Question- Beta University).*

5.2.2.3 Differences between actual and desired technical support:

Question 5.2 aimed to find out if there are statistically significant differences between *actual* and *desired* technical support. As can be seen from Table 4.63, paired t-test results revealed statistically significant differences between *actual* and *desired* technical support (A.M = 2.48, D.M = 4.60). According to the items' means, the biggest gap between *actual* and *desired* support in this section

appears in providing a 24/7 help desk (A.M = 1.89, D.M = 4.70). Meanwhile, the smallest gap appears in the academic staff's ratings for the *actual* and *desired* provision of facilities to encourage them to participate in e-learning (A.M = 3.26, D.M = 4.60).

5.2.3 What are the actual and desired pedagogical support?

The pedagogical support section aims to survey academic staff's opinions about the approaches followed by the universities to address the pedagogical issues and achieve a high level of pedagogical quality for e-learning courses. Academic staff were asked to rate the *actual* and *desired* pedagogical support (*Questions 1.3 and 3.3*). The section consists of six types of pedagogical support reported by the related literature such as facilitating cooperation with instructional designers (Moskal *et al.*, 2013; Perreault *et al.*, 2008), providing authoring tools to design e-learning courses and providing prepared pedagogical templates for e-learning courses (Masoumi & Lindstorm, 2012; Moskal *et al.*, 2013), running pedagogical consultation units (Lion & Stark, 2010; Taylor & McQuiggan, 2008), producing guides to increase courses' pedagogical quality (Taylor & McQuiggan, 2008) and establishing online communities to share e-learning experiences (Stacey & Gerbic, 2008; Taylor & McQuiggan, 2008; Žuviü-Butorac & Nebiü, 2009).

5.2.3.1. Actual pedagogical support

For *actual* pedagogical support, it can be seen from the results of this section (Table 4.7) that academic staff stated that their universities *rarely* provide the required pedagogical support (M = 2.16). Despite all items in this section being rated as *rarely provided*, academic staff ranked the item regarding providing course authoring tools (M = 2.55) highest in this section. On the other hand, they ranked running pedagogical consultation units (M = 1.92) lowest in this section. These findings are consistent with the reported ignorance of providing pedagogical support (i.e. Maguire, 2005; Ham *et al.*, 2007).

However, these results conflict with leaders' points of view who stated that the e-learning deanships provide pedagogical support such as allocating units at department or faculty level to provide the appropriate consultations for specific academic discipline:

> *In this academic year the departments nominated 73 female and 51 male academic staff to be e-learning content designers and advisors in their departments. In the training programmes we focused on the appropriate tool for their academic discipline (Leader-Alpha University).*

Another pedagogical support provided by enabling different templates for different disciplines:

> *There is a default template for each course. These templates are designed and selected based on the course content and objectives. There are templates suitable for engineering courses, social science courses and so on (Leader-Alpha University).*

Another leader mentioned three approaches for helping academic staff to create pedagogically well-established courses:

> *In developing content, we follow three approaches. The main one is to encourage academic staff to build their content and we provide them all the required support, the departments nominate a group of academic staff to design content for the department courses and thirdly we purchase courses from commercial companies (Leader-Gamma University).*

Furthermore, leaders clarified different ways to establish communities to share ideas:

- *There were formal discussion boards hosted by the university website to discuss e-learning issues… now, social media especially Twitter play a huge part in sharing the idea of e-learning issues (Leader-Beta University).*
- *We strongly encourage academic staff to attend the annual conference and workshops organised by NCeL. In this conference and workshops academic staff and stakeholders exchange experiences (Leader-Delta University).*

5.2.3.2. Desired pedagogical support

In terms of *desired* pedagogical support, academic staff stated pedagogical support is *highly desired* (M = 4.29) (Table 4.36). The results are similar to those of Masoumi and Lindstorm (2012) and Moskal *et al.* (2013) who claim that templates or toolkits which include guides to design courses should be provided to ensure high pedagogical quality for e-learning courses. In addition, the results confirmed the studies that suggest that an instructional designer, employed to assist academic staff in designing e-learning courses, is an essential element to provide valuable guidance in pedagogical issues (Moskal *et al*., 2013; Perreault *et*

al., 2008). According to Taylor and McQuiggan (2008) an instructional designer was the most helpful support provided to develop and teach e-learning courses. Furthermore, the results are consistent with Žuviü-Butorac and Nebic (2009) who report that establishing an academic staff online community to discuss e-learning issues was an important outcome for a three-year e-learning project in a Croatian university. These online communities allow academic staff to share their knowledge and concerns and effective practices (Stacey & Gerbic, 2008; Taylor & McQuiggan, 2008).

Furthermore, the necessity for pedagogical support is confirmed by qualitative results:

> *I can transfer the course content to the VLE but I need consultation about how to re-design the content to achieve additional benefits (Huda-Beta University).*

Despite the fact that all the items of this section are *highly desired* or *desired*, academic staff gave the highest priority to producing guides to increase courses' pedagogical quality (M = 4.44). This could be explained by Taylor and McQuiggan's (2008) results that guides were the most desired resources, as academic staff prefer self-based resources. On the other hand, they ranked facilitating cooperation with instructional designers (M = 4.01) in the last place in this section. An academic staff provides an explanation for this result:

> *I think the instructional designer would help me by providing advice but I do not wish him to contact students or set assignments or content by himself (Abdullah-Epsilon University).*

This is supported by Olcott and Wright (1995) who suggest that academic staff have concerns that this approach could undermine their control and autonomy of their courses.

5.2.3.3. Differences between actual and desired pedagogical support

Question 5.3 aimed to find out if there are statistically significant differences between *actual* and *desired* pedagogical support. As can be seen from Table 4.64, paired t-test results revealed statistically significant differences between *actual* and *desired* pedagogical support (A.M = 2.16, D.M = 4.29). According to the items' means, the biggest gap between actual and desired support in this section appears in running pedagogical consultation units (A.M = 1.92, D.M = 4.41).

Meanwhile, the smallest gap appears in the academic staff's rating of the *actual* and *desired* provision of course authoring tools (A.M = 2.55, D.M = 4.34).

5.2.4 What are the actual and desired technical training?

The technical training section aims to evaluate the training programmes and activities which are organised by the university to increase academic staff's technical skills. Academic staff were asked to rate the *actual* and *desired* technical training programmes (*Questions 1.4 and 3.4*). The section consists of six types of technical training programme suggested by the related literature such as organising TPs to enhance the use of ICT in teaching, increasing course management skills in the VLE, increasing course content management skills in the VLE, increasing skills in using communication tools in the VLE, increasing students' progress tracking skills in the VLE and increasing assessments skills in the VLE (Dabbagh & Kitsantans, 2005; Minsull, 2004; Tina, 2011).

5.2.4.1. Actual technical training

Regarding *actual* technical training, academic staff reported their universities *rarely* provide technical training programmes (M = 2.59) (Table 4.8) which agree with various studies which indicate that insufficient technical training programmes is a barrier to participating in e-learning initiatives (Bacow *et al*., 2012). However, academic staff were satisfied to some extent with the availability of three types of training programme, rating them as *occasionally* provided. These are training programmes to enhance the use of ICT in teaching (M = 3.15), course management in the VLE (M = 2.95) and course content management in the VLE (M = 2.63). Meanwhile, they refer to insufficient training programmes to enhance skills in more advanced features such as communication tools, assessment tools and finally, enhancing students' progress tracking.

However, it should be noted that technical training was provided more than the other types and it is very close to the next category up (*occasionally*). An explanation for the relatively extensive provision of technical support can be seen by a leader as a result of:

> *Different departments and deanships provide training programmes within the university such as e-learning, information technology, skills development*

deanships. In addition, there are external providers such as NCeL. Usually, these training programmes focus on technical objectives (Leader-Gamma University).

5.2.4.2. Desired technical training

In terms of *desired* technical training programmes, academic staff confirmed the importance of technical training programmes by rating this section as *highly desired* (M = 4.42). Academic staff stated all the section's items as *highly desired (*Table 4.37*)*. However they gave organising training programmes to increase course content management skills in the VLE highest priority in this section (M = 4.54). On the other hand, they ranked organising training programmes to increase students' progress tracking skills in the VLE lowest in the technical training section (M = 4.25).

The study's results confirm the importance of providing technical training and support those studies that suggest that training programmes could increase academic staff's perceptions of *perceived ease of use* which has a positive impact on e-learning adoption (De Smet *et al.*, 2012). The necessity for technical training programmes is confirmed by qualitative results:

Mainly, I use basic assessment tools in the VLE to provide multiple answers in a small quiz after the lecture. This quiz is marked automatically and increases students' engagement and interaction with the course. I am highly motivated to use the VLE to introduce the content, but after completing training programmes (Reema-Epsilon University).

The reported *desired* technical training programmes in this study were also identified by Sanmamed *et al*. (2014) who explored the professional needs to assist academic staff to accomplish the social, evaluator, managerial, advisor and technical roles in e-learning environments. Furthermore, the way in which the training programmes are ranked corresponds with Malikowski *et al.* (2007) who stress that VLE's tools for adoption were affected by the tools' complexity with content transmission tools being more likely to be adopted than communication and assessment tools, and finally full online course tools. The results that showed less desire for more advanced tools could be explained by an academic staff member:

The university expectes me to present all my lectures face to face. Using the VLE is additional and optional. For this reason I only use the administrative and automated assessment tool and avoid activating the communication tools (Nada-Delta University).

5.2.4.3. Differences between actual and desired technical training

Question 5.4 aimed to find out if there are statistically significant differences between *actual* and *desired* technical training. As can be seen from Table 4.65, paired t-test results revealed statistically significant differences between *actual* and *desired* technical training (A.M = 2.59, D.M = 4.42). According to the items' means, the biggest gap between actual and desired support in this section appears in providing training programme assessments skills in the VLE (A.M = 2.27, D.M = 4.50). Meanwhile, the smallest gap appears in the academic staff's rating of the actual and desired training programmes to enhance the use of ICT (A.M = 3.15, D.M = 4.45). To a large extent, the gap between the *actual* and *desired* technical training programme were found in Sanmamed *et al*.'s (2014) study which found differences between academic staff's current level of academic staff proficiency and professional development needs regarding the social, evaluator, managerial, advisor and technical roles in e-learning environments.

5.2.5 What are the actual and desired pedagogical training?

The pedagogical training section aims to survey academic staff's opinions about training programmes and activities that are organised by the university to increase academic staff's pedagogical knowledge and proficiency. Academic staff were asked to rate the *actual* and *desired* pedagogical training programmes (*Questions 1.5 and 3.5*). The section consists of six types of pedagogical training programme suggested by the related literature such as organising TPs to improve instructional design skills (Carril *et al*., 2013; Sanmamed *et al*., 2014), assist academic staff reconceptualising role in e-learning environments (Ocak, 2011), enhance interaction through e-learning, increase students' engagement through e-learning (Carril *et al*., 2013; Sanmamed *et al*., 2014), improve the creation of learner-centred learning strategies (Taylor & McQuiggan, 2008) and

to guide the best practices in blending face-to-face teaching and e-learning (Stacey & Gerbic, 2008).

5.2.5.1 Actual pedagogical training

For *actual* pedagogical training, academic staff reported a noticeable absence of pedagogical training programmes (Table 4.9). According to academic staff's responses this type of support is *rarely* provided by their universities (M = 2.06). Despite all items in this section being rated as *rarely* provided, academic staff rated the item regarding organising TPs to improve instructional design skills first in this section (M = 2.13). On the other hand, they ranked organising TPs to guide them to the best practices in blending face-to-face teaching and e-learning last in this section (M = 2.00).

Lack of provision of pedagogical training is consistent with studies that focus on technical skills rather than providing balanced training programmes covering both technological and pedagogical skills (Baran *et al*., 2011; Benson & Ward, 2013; Lion & Stark, 2010).

5.2.5.2 Desired pedagogical training:

In terms of *desired* pedagogical training, academic staff confirmed the importance of providing pedagogical training, rating this section as *highly desired* (M = 4.45) (Table 4.38). According to the means of these items, academic staff rated organising TPs to guide them to the best practices in blending face-to-face teaching and e-learning (M = 4.68) as the most desired pedagogical training programme. In qualitative findings, academic staff reported importance of this type of training;

> *It is important to have training programmes to increase interaction between students... I want to improve my skills in "brain storming" in the VLE (Huda-Beta University).*

Another academic staff referred to importance of TPACK knowledge:

> *The training focuses on how to use the tool, not how to adapt it to serve my content (Hassan-Gamma University).*

An academic staff referred to "flipped classroom" as a practice to establish blended learning:

> *Before every lecture, I uploaded a video clip in the VLE and ask students to watch it. During the lecture we discuss some subjects related to the video.*

> *Later, I discovered this is called a "flipped classroom". It would be very helpful if I could take training programmes on this topic (Sara-Alpha University).*

Another academic staff asks to create better knowledge about how to integrate face to face lectures and online activities:

> *I give a traditional lecture in the classroom. How can the VLE help me to support this lecture? (Omar-Delta)*

The pedagogical training programmes that enable academic staff to reform traditional teaching practices were a common type of required programmes. For example, an academic staff stated that:

> *When I assess my students, I usually use quizzes or small discussions in the class. I assume the situation is completely different in the VLE. I have no idea about good practices in terms of students' assessment (Lama-Gamma University).*

Another academic staff says:

> *I can utilise many teaching strategies in the classroom. However, how can I transfer these strategies to the VLE. What is most useful strategy in the classroom and what is the best in the VLE (Reema-Epsilon University).*

Academic staff emphasised the importance of pedagogical training which supports Porter *et al.* (2014) who suggest that institutions' failure to provide the required training programmes to enhance academic staff's pedagogical skills leads them to replicate their teaching practices. The importance of these training programmes is mentioned by Sanmamed *et al*. (2014) and Carril *et al.* (2013) who identify professional needs required to cover the pedagogical and social roles of academic staff in e-learning environments. Nevertheless, academic staff expressed less desire for the creation of learner-centred learning training programmes (M = 4.10). This could be due to the impact of academic staff's beliefs on their teaching strategies (Howell *et al*., 2004). Likewise, academic staff in the interviews expressed their uncertainty about learner-based learning strategies. For example, one academic staff member stated:

> *Learner-based learning? Does this mean students work independently? No I do not think I am ready to this stage, maybe later (Abdullah-Epsilon University).*

However, another academic staff member stated that:

I might have utilised this strategy earlier. I gave the students list of questions and asked them to use the Saudi Digital Library to answer these questions. I am not sure if I followed the right steps but it did work Yes, if there are training programmes to help me in this area I would attend them (Sara-Alpha University).

5.2.5.1 Differences between the actual and desired pedagogical training

Question 5.5 aimed to find out if there are statistically significant differences between *actual* and *desired* pedagogical training. As can be seen from Table 4.66, paired t-test revealed statistically significant differences between *actual* and *desired* pedagogical training (A.M = 2.06, D.M = 4.45). According to the items' means, the biggest gap between actual and desired support in this section appears in providing training programmes to blend face-to-face teaching and e-learning (A.M = 2.00, D.M = 4.68). Meanwhile, the smallest gap appears in the academic staff's rating of the *actual* and *desired* training programme for creating learner-centred strategies (A.M = 2.01, D.M = 4.10).

To a large extent, the gap between the *actual* and *desired* pedagogical training programmes was found in Sanmamed *et al.*'s (2014) study in which they found differences between academic staff's current level of proficiency and professional development needs regarding pedagogical roles in e-learning environments.

5.2.6 What are the actual and desired flexibility of training programmes?

This section aims to survey academic staff's opinions about the diversity and flexibility of training programmes. Academic staff were asked to rate the *actual* and *desired* flexibility of training programmes (*Questions 1.6 and 3.6*). The section consists of five indicators of training programmes' flexibility reported by the related literature such as providing TPs based on accurate need assessments (Porter *et al.,* 2014; Zayim *et al*., 2006), diversity of TPs in terms of means (e.g. face-to-face and online) (Morgan, 2003; Taylor & McQuiggan, 2008), diversity of TPs in terms of form (e.g. one-to-one and team-based), organising TPs on flexible dates and diversity of TPs in terms of duration (short term-long term) (Al-Mulhem, 2013; Al-Zahrani, 2015; Kukulska-Hulme, 2012; Taylor & McQuiggan, 2008; Taylor & Wilson, 2012).

5.2.6.1 Actual flexibility of training programmes:

For *actual* training programmes' flexibility, academic staff reported insufficient flexibility of training programmes (Table 4.10). According to academic staff's responses this type of support is *rarely* provided by their universities (M = 2.07). Despite all items in this section being rated as *rarely* provided, in first place in this section academic staff rated their universities' provision of diversity of TPs in terms of duration (short term-long term) (M=2.22). On the other hand, they expressed their concerns about their universities' ability to provide TPs based on accurate need assessments (M = 1.84). This result is supported by Taylor and McQuiggan (2008) who state that training was designed according to the designers' assumptions about academic staff's needs and underestimated their academic staff needs for training.

Academic staff member says:

> *There are plenty of training programmes but they are not helpful enough in teaching my course content (Ali-Alpha University).*

These results conflict with leaders' points of view as they indicated different approaches to provide training programmes based on academic staff's needs. A leader said that:

> *We do not measure academic staff's skills or explore their needs regularly; instead we ensure the provision of sufficient training programmes for all academic staff levels (Leader-Delta University).*

However, applying surveys is the most common approach to building training programmes based on academic staff's needs:

> *We design and apply surveys at the end of the year, asking academic staff's opinions about lists of suggested training courses and related issues such as the appropriate time to organise the training events (Leader-Epsilon University).*

Another leader stated that:

- *Most training programmes, either technical or pedagogical, are designed and organized by the "professional development deanship". They have specialised teams and cooperate with departments to identify training needs (Leader-Alpha University).*

In addition, leaders tend to adopt a similar approach to provide more individual or small, peer training programmes. For example, a leader explained an approach to widen training event opportunities; he called it the "Waterfall" strategy:

> *We aim to expand one-to-one training opportunities. We asked departments to nominate academic staff. Then we trained them to be trainers inside the department and faculty (Leader-Epsilon University).*

Academic staff member suggests that insufficient effective communication as an explanation for the conflict between leaders and academic staff point of view:

> *I have received a number of training programmes in my email just a short time before the starting date. Also, some of these training programmes are not related to my course discipline or my area of interest (Ahmad-Beta University).*

Another academic staff referred to lack of the time and training programmes scheduling:

> *There are many training programmes organised at the beginning of the term. Usually, I am too busy at that stage of the term. There is another problem: if this basic training programmes is only organised at the beginning, it means I miss the other ones (Huda- Beta University).*

5.2.6.2 Desired flexibility of training programmes

In terms of *desired* level of training programmes' flexibility, academic staff reported that training programmes' flexibility is highly important by rating four out of five suggested items as *highly desired* (M = 4.45) *(*Table 4.39*)*. According to the means of these desired items, academic staff gave the highest priority to providing TPs based on accurate need assessments (M = 4.65) since different adopters' categories have different training programme needs (Zayim *et al.,* 2006). Furthermore, the literature supports the importance of other TP flexibility aspects. For example, Taylor and McQuiggan (2008) state that limited time was the greatest barrier to enrolling in TPs, and academic staff asked for training programme flexibility to fit into their daily activities and busy schedules. On the other hand, they ranked providing diverse TPs in terms of means (e.g. face-to-face and online) in the last place in this section (M= 4.19).

Likewise, qualitative findings show that academic staff prefer individual or small groups training sessions. For example, an academic staff stated that:

- *It would be useful if the e-learning deanships were to enable a blank course and ask me to perform weekly tasks then provided feedback about my performance and suggested more effective practice (Nada-Delta University).*

Another academic staff says:

- *I feel more comfortable when I attend courses with a small number of trainees because I can interact more effectively in small groups and get direct feedback (Hassan- Gamma University).*

A leader indicated that the university provide such a training approach:

- *We allow academic staff to self-train through electronic and text-based guides and give them the chance to explore the VLE tools by creating demos and hidden courses (Leader-Alpha University).*

In terms of place, academic staff refer to on-site training programmes as a preferable form:

> *Training programmes require time and additional effort to get to the training centers, so I prefer to coordinate meetings with trainers in my office (Ahmad-Beta University).*

In terms of length, academic staff prefer short training programmes:

> *I prefer short courses in small groups focussing on a single object. After mastering this skill I would like to move to another one. It is very important that it should be held inside the department or faculty (Abdullah-Epsilon University).*

One of the most reported barriers of training programmes is the conflict between regular teaching activities and training. An academic staff suggests setting up a "training day" to overcome the time barrier:

> *The training programmes take place during the busy day. I suggest there should be a "training day" for each department or similar group of academic staff. For example, group one could be trained on the first Monday every month, group two on the last Monday of every month and so on (Open Question-Epsilon University).*

5.2.6.3 Differences between actual and desired flexibility of training programmes

Question 5.6 aimed to find out if there are statistically significant differences between academic staff rating for *actual* and *desired* flexibility of training programmes. As can be seen from Table 4.67, paired t-test revealed statistically significant differences between *actual* and *desired* flexibility of training programmes (A.M = 2.07, D.M = 4.45). According to the items' means, the biggest gap between *actual* and *desired* support in this section appears in the provision of TPs based on accurate need assessments (A.M = 1.84, D.M = 4.65). Meanwhile, the smallest gap appears in the academic staff's rating of *actual* and *desired* diverse TPs in terms of means (e.g. face-to-face and online) (A.M = 2.05, D.M = 4.19).

5.2.7 What are actual and desired Institutional incentives?

The institutional incentives section aims to survey academic staff's opinions about the policies and procedures legislated by the university to encourage academic staff to participate in e-learning initiatives. Academic staff were asked to rate *actual* and *desired* institutional incentives (***Questions 1.7 and 3.7***). This section consists of five types of incentive scheme reported by the related literature such as developing monetary compensation schemes, adjusting traditional workload credits, appreciating academic staff's participation in e-learning, taking into account academic staff's efforts in promotion processes and arranging funded travel to attend e-learning events (Gannon-Cook et al., 2009; Gautreau, 2011; Graham *et al.,* 2013; Masoumi & Lindstorm, 2012; Perreault *et al*., 2008; Schneckenberg, 2010; Stacey & Gerbic, 2008).

5.2.7.1. Actual institutional incentives

For *actual* institutional incentives, academic staff reported lack of institutional incentive (Table 4.11). According to academic staff's responses this type of support is *rarely* provided by their universities (M = 2.42). Only one item in this section was rated as *occasionally* provided where they reported that their universities arrange funded travel to attend e-learning events (M = 3.16). On the other hand, this section included the only item in the study rated as *never* provided which is adjusting traditional workload credits (M = 1.75). This is similar to studies which reveal insufficient of the required incentives to encourage staff to participate in e-learning (Al-Soniadi *et al*., 2009; Chizmar &

Williams, 2001; Heltz *et al*., 2007; Maguire, 2005; Newton, 2003; Pajo & Wallace, 2001, Perreault *et al*., 2008). For example, Gannon-Cook *et al*. (2009) review the findings of four studies on how universities reward their academic staff for distance education efforts. They found the common barriers to be academic staff's concerns about workload, lack of release time and of monetary support.

In qualitative findings, the consumed time and workload issues were the more reported concerns about e-learning. For example, an academic staff says:

> *The time consumed is my main concern. I spend time designing and uploading the content but the most time is spent on interacting and managing discussions among students. The problem is that this time is not counted as workload credit (Reema-Epsilon University).*

Leaders agrees that adjusted workload is not provided for academic staff, instead they provide financial incentives:

> *No, teaching a course in the VLE is a supplementary part to support the traditional courses, so instead of reducing the workload, academic staff receive monthly financial incentives called "using computers in teaching bonus". (This bonus can be 20-25 per cent of their basic salary). For example, if the basic salary of an academic staff member is £2000, an amount of £400 will be added to his monthly salary (Leader-Alpha University).*

However, an academic staff explains how this bonus has lost its value:

> *This financial incentive is provided in nearly all universities for all academic staff even if they do not use the VLE or ICT in teaching (Ahmad-Beta University).*

To solve this issue a leader says:

> *We (e-learning deanship) were asked by a high level administrator to suggest criteria to decide the percentage of compensation for each academic staff member. We proposed four levels of interactivity: highly interactive, interactive, slightly interactive, non-interactive based on his/her activity statistics in the VLE (Leader-Alpha University).*

However, another leader does not think e-learning is time-consuming:

> *For the academic staff who use VLEs, I think it save times when academic staff use communication tools to contact students instead of waiting for them in his office. But there is a reduction for the supervisors of e-learning units*

are academic staff by three credits in their weekly workload (Leader-Epsilon University).

E-learning leaders consider this issue is the main barrier that threatens their efforts:

- *We communicate with decision makers in the university to count VLE courses as a part of the traditional workload. I think such a decision is unlikely to be taken (Leader-Gamma University).*
- *Workload? This problem is the most common complaint from academic staff. Deans always discuss it in the NCeL conferences. The workload of an assistant professor is 14-16 hours per week. This is by regulation of MoHE. The university does not have the authority to change this (Leader-Beta University).*
- *This kind of support could face opposition from academic staff who do not use the VLE, as such decisions could influence them (Leader-Epsilon University).*

In this section, academic staff reported a relatively high availability of funded travel to attend e-learning events. A leader confirm this type of support:

We encourage academic staff to attend training programmes abroad and attend conferences. These programmes are funded and aim to encourage academic staff to travel and study in different environments (Leader-Alpha University).

In addition, leaders stated that academic staff are provided financial compensation in some cases such as winning a national or local competition and if their courses achieved the quality standards:

- *We have an annual award of excellence in online teaching, and we support academic staff to participate in the annual award of excellence in online teaching that is organised by NCeL (Leader- Epsilon University).*
- *We encourage and provide financial incentives for every academic staff member if his course addresses Quality Matters Programmes standards (Leader-Gamma University).*

5.2.7.2. Desired institutional incentives

In terms of *desired* institutional incentives, academic staff considered institutional incentives to be highly important, rating the section as *highly desired* (M = 4.28) (Table 4.40). According to the means of these desired items,

academic staff gave the highest priority for adjusting traditional workload credits (M = 4.75). Schneckenberg (2009) confirms the importance of providing incentives to avoid academic staff feeling that their institutions marginalise e-learning efforts and cause damage to their academic career as they do not invest time in rewarding efforts such as conducting research. Gannon-Cook *et al*. (2009) state that while early e-learning adopters are intrinsically motivated, external motivators (i.e. institutional incentives) have a positive influence on late adopters. On the other hand, they expressed relatively less desire for taking into account academic staff's efforts in the promotion processes (M = 3.60). This result is similar to some extent of academic staff concerns of departments' roles and their concerns of being under pressure.

5.2.7.3. Differences between actual and desired institutional incentives

Question 5.7 aimed to find out if there are statistically significant differences between *actual* and *desired* institutional incentives. As can be seen from Table 4.68, paired t-test results revealed statistically significant differences between *actual* and *desired* institutional incentives (A.M = 2.42, D.M = 4.28). According to the items' means, the biggest gap between *actual* and *desired* support in this section appears in adjusting traditional workload credits (A.M = 1.75, D.M = 4.75). Meanwhile, the smallest gap appears in the academic staff's rating of *actual* and *desired* funded travel to attend e-learning events (A.M = 3.16, D.M = 4.28).

5.2.8 What are actual and desired institutional support?

5.2.8.1. Actual institutional support

In general, as can be seen from the results of the forty-four items (seven sections) (Table 4.12), academic staff stated that their universities *rarely* provide the required support (M = 2.29). These results concur with various studies which report insufficient institutional support (i.e. Al-Soniadi *et al*., 2009; Baran *et al*., 2011; Ertmer *et a*l., 2012; Heltz *et al*., 2007; Ocak, 2011).

Qualitative findings (an academic staff point of view) confirmed this result:

> *I developed my first course by trial-and-error strategy. It does work but because I utilised basic tools. There was no real and instant support (Omar-Delta University).*

Academic staff reported incapability of current supporting programmes in encouraging academic staff to involve in e-learning:

- *I do not think the support is enough. My participation in e-learning is basically for its advantages for me and the students. If I linked my participation with the institutional support I would not go further (Reema-Epsilon University).*
- *For me, my only incentive to use the VLE is the intrinsic motivation to help my students. I believe if the current support remains as it is, it would be difficult to make academic staff who do not have intrinsic motivation become involved in e-learning (Sara-Alpha University).*

However, a participant provides a different point of view:

> *To be fair, there is effort but it is not well directed so it does not achieving their goals (Open Question-Gamma University).*

In general, academic staff and leaders have conflicting points of views about the actual institutional support. This conflict in evaluation of the support programmes could be caused by ineffective communication channels within the university. For example, although leaders stated that there are e-learning units on faculty or departmental levels, some interviewees asked for this type of support. A leader says:

> *Despite having a unit to provide support in almost every faculty, I have heard lots of complaints from academic staff. We will try to find a better communication mechanism between the academic staff and the support team (Leader-Beta University).*

In addition, these differences might be due to the variation in university and academic staff's main goals about e-learning (these differences will be clarified later in this chapter).

Despite the results revealing insufficient institutional support, they can be categorised according to means into three main categories: *occasionally* provided (seven items), *rarely* provided (36 items) and *never* provided which includes a single item. Surprisingly, academic staff did not report any support items as *always* or *frequently* provided. According to the items' means, the following

support types ranked as the top five provided institutional support; offering facilities to participate in e-learning (e.g. laptops, tablets, etc.) (M = 3.26), arranging funded travel to attend e-learning events (M = 3.16), organising training programmes to enhance the use of ICT in teaching (M = 3.15), providing reliable technical infrastructure (M = 2.98) and organising training programmes to increase course management skills in the VLE (M = 2.95).

On the other hand, they ranked the following five items as the least provided; the provision of support to keep pace with e-learning programmes' growth (M = 1.92), running units for educational multimedia production (M = 1.90), running a 24/7 help desk to provide support (M = 1.89) and designing training programmes based on accurate needs assessment (M = 1.84), and finally, adjusting traditional workload credits (M = 1.75).

In terms of the sections, all seven sections were reported as *rarely* provided with means ranked between 2.06 to 2.59 (Table 4.13). Interestingly, sections related to the technical aspects of e-learning (technical training and technical support) were ranked first and second; meanwhile, sections related to pedagogical aspects of e-learning (pedagogical support and pedagogical training) were ranked fifth and seventh. These results are consistent with studies which indicate that e-learning initiatives are technology-led rather than techno-pedagogical initiatives (Baran *et al*., 2011; Yurdakul *et al.*, 2012). Consequently, institutions' support efforts and training programmes tend to focus on the technical aspects of e-learning (Arabasz & Baker, 2003; Benson & Ward, 2013 Lion & Stark, 2010; Wilson, 2012). This result was confirmed by a leader:

> *Yes that is right our support and training programmes are now related to how to use the VLE tools, which basically, can be considered as technical training and support. Likewise, we have on-site support teams in almost every faculty to provide technical support. However, we allocate Mondays of each week to hosting academic staff and providing pedagogical consultations (Leader-Alpha University).*

5.2.8.2. Desired institutional support

Regarding *desired* institutional support, as can be seen from the results of the forty four items (seven sections) (Table 4.41), academic staff considered institutional support items to be highly important, rating them *as highly desired*

(M = 4.41). The results are consistent with studies highlighting the importance of institutional support in the adoption of e-learning initiatives and continuation (Baran *et al*., 2011; McGill *et al*., 2014). In addition, the importance of institutional support is widely recognised by studies that utilise e-learning adoption models and theories. In fact, the components that refer directly to institutional support such as service quality in Delone and McLean's model, facilitating conditions (UTAUT) model, have a direct positive impact on the adoption of e-learning (Duyck *et al.*, 2008; Ozkan & Koseler, 2009; Oye *et al.,* 2011; Teo, 2011).

According to the items' means, they can be categorised into two main categories; *highly desired* support items (37 items), and *desired* support items (seven items). Among these 44 support items, academic staff cited the following five as those which should be given the highest priority by universities: adjusting traditional workload credits (M = 4.75), providing reliable technical infrastructure (M = 4.72), running a 24/7 help desk to provide support (M = 4.70), keeping pace with e-learning programmes growth (M = 4.70) and organising TPs to guide them to the best practices in blending face-to-face teaching and e-learning (M = 4.68). On the other hand, academic staff rated the following five items relatively less than the other desired support: establishing online communities to share e-learning experiences (M = 4.12), organising TPs to create learner-centred learning strategies (M = 4.10), facilitating cooperation with instructional designers (M = 4.01), taking into account academic staff's efforts in the promotion processes (M = 3.60) and finally, faculty/departments role in encouraging academic staff to participate in e-learning (M = 3.55).

In terms of the *desired* sections, all seven sections were reported as *highly desired* with means ranking between 4.28 and 4.60 (Table 4.70). Interestingly, technical support remains top of desired institutional support sections (M = 4.60) followed by training programme flexibility and pedagogical training. Surprisingly, academic staff expressed less desire for institutional incentives compared with the other sections (M = 4.28).

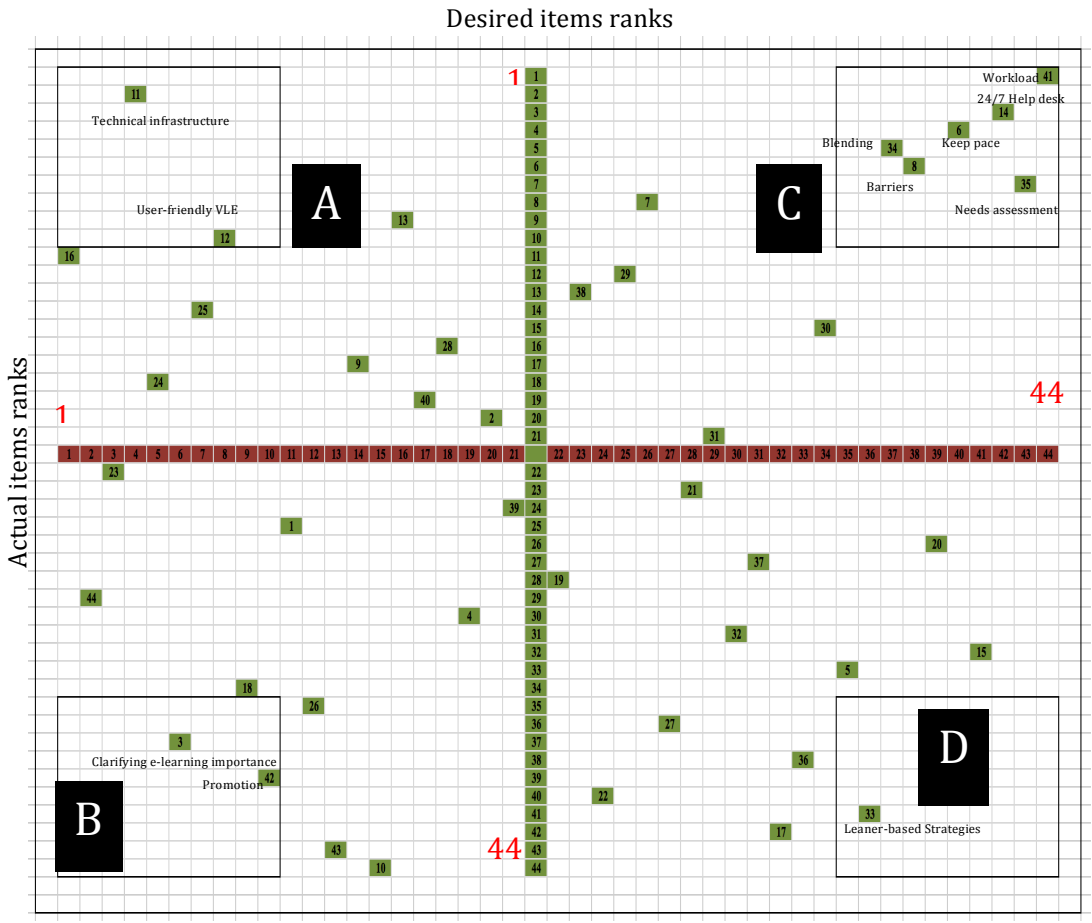
5.2.8.3. Differences between actual and desired institutional support

In terms of the differences between *actual* and *desired* institutional support, as can be seen from Table 4.69, paired t-test results revealed differences between the two in all items and sections (A.M = 2.29, D.M = 4.41).

The gap between *actual* and *desired* institutional support reported by this study is consistent with Phipps and Merisotis' (2000) results in which they reported substantial differences between the importance of institutional support benchmarks and their actual presence in universities. These benchmarks are located in areas of professional incentives, institutional rewards, guides about quality standards, and technical infrastructures.

According to the items' means and ranks, four types of gap emerged; these gaps could indicate variation in academic staff and university priorities, as follows (Figure 5.1):

Figure 5.1. Types of Institutional Support Gaps



- The first occurred when an item ranked at the top of *actual* items and the top of *desired* items, which indicated agreement between the university and academic staff regarding the importance of these items. These items were: Item 11 (Technical Infrastructure) and Item 12 (User-Friendly VLE) (Area A).
- The second occurred when the item ranked at the top of *actual* items and bottom of *desired* items, which indicated disagreement between the university and academic staff. These items were considered a priority for the university but not for academic staff. These items were: Item 3 (Clarifying the importance of e-learning in the university vision) and Item 42 (Taking into account e-learning efforts in promotion process) (Area B).
- The third occurred when the item ranked at the bottom of the *actual* items and top of the *desired* items, which indicated disagreement between the university and academic staff. These items were considered a priority for the academic staff but not for the university. These items were: Item 34 (Blended learning strategies), Item 8 (Identifying e-learning barriers), Item 6 (Support programmes keep pace with e-learning growth), Item 14 (24/7 help desk), Item 35 (training programmes based on needs assessment) and Item 41 (Adjusted workload) (Area C).
- The fourth occurred when the item ranked at the bottom of the *actual* items and the bottom of the *desired* items, which indicated agreement between university and academic staff in lower importance of this support. This category includes a single item (Training programmes to improve learner-based strategies) (Area D).

In terms of sections, the biggest gap between *actual* and *desired* institutional support can be found in pedagogical training (A.M = 2.06, D.M = 4.45). Meanwhile, the smallest gap appears in technical training (A.M = 2.59, D.M = 4.42).

5.3 Differences in actual and desired institutional support according to the study's variables and sub-variables

This section aims to present and discuss differences in academic support rating for the institutional support according to *university* (five universities), *faculty* (four different disciplines), *gender* (male and female), *main purpose* of using the VLE (four main purposes) and *attitude* toward participation in e-learning (three levels of attitude). Means of academic staff's responses, one-way ANOVA and Scheffe's test and t-test (for gender) were used to determine whether the differences are statistically significant. The sections will be divided into three main parts; the differences in *actual* institutional support according to the investigated variable, the differences in *desired* institutional support according to the investigated variable and finally, the differences between the *actual* and *desired* institutional support for each sub-variable.

5.3.1 Differences in *actual* and *desired* institutional support according to university

5.3.1.1. Differences in actual institutional support among universities

In terms of differences between universities in providing *actual* institutional support (Question 2.1), One-Way ANOVA test results showed that there are statistically significant differences among the five universities (Table 4.16). As can be seen from the means in Table 4.14, academic staff in four universities rated *actual* institutional support as *rarely* provided by their universities with means ranging between 1.85 and 2.46. The only exception was in Gamma University where the academic staff reported that their university *occasionally* provides institutional support (M = 2.71). In addition, the similarity in the rating of *actual* institutional support among the five universities can be found to a large extent in their ranking of items (Table 4.14) and sections (Table 4.15).

Despite academic staff reporting insufficient institutional support in four universities, there were statistically significant differences between some of these universities either overall or in certain sections. This result is consistent with Alenezi's (2014) findings where the study revealed that academic staff in old-established univerisites face less challenges in terms of incentives and

technical infrastructure and support than the relatively newly established universities.

These differences could be influenced by factors such as the university's size, location, programmes and culture (Arbasz & Baker, 2003). Graham *et al.*'s (2013) findings could provide another explanation for these differences. They investigated strategy, structure and support of six universities according to three adoption stages (two universities for each stage). They found that in stage 1 (awareness/exploration stage) the universities provided limited or no incentives in the form of technical or pedagogical support; meanwhile the universities in stage 2 (adoption/early implementation stage) increased their efforts to explore academic staff's needs and the required support; and finally, in stage 3 (mature implementation/ growth stage) the universities provided well-established and robust support structures.

5.3.1.2. Differences in desired institutional support among universities

In terms of differences in *desired* institutional support (Question 4.1), the test results showed statistically significant differences among the five universities (Table 4.45). As can be seen from the means in Table 4.43, academic staff in the five universities rated institutional support as *highly desired* with means ranging between 4.31 and 4.59. In terms of items and sections, the top five desired institutional support items (Table 4.43) and sections (Table 4.44) were ranked similarly to a large extent.

5.3.1.3. Differences between actual and desired institutional support for each university

In terms of significant differences between *actual* and *desired* institutional support for each *university* (five sub-variables) (Question 6.1) paired t-test results revealed statistically significant differences between *actual* and *desired* institutional support in all five universities (Table 4.71, 4.73, 4.75, 4,77 and 4.79). According to the means, the biggest gap between *actual* and *desired* institutional support appears in Delta University (A.M = 1.85 R = 5, D.M = 4.33 R = 4). Meanwhile, the smallest gap appears in Gamma University (A.M=2.71 R = 1, D.M = 4.73 R = 3).

5.3.2 Differences in *actual* and *desired* institutional support according to faculty

5.3.2.1. Differences in actual institutional support among faculty:

In terms of differences between faculty in *actual* institutional support (Question 2.2), one-way ANOVA the test results showed statistically significant differences among the four faculties (Table 4.20). As can be seen from the means in Table 4.18, academic staff in three faculties (i.e. the Humanities, Business and Science faculty) rated the *actual* institutional support as *rarely* provided by their universities with means ranging between 1.97 and 2.27. The only exception occurred in the Engineering faculty where the academic staff reported that their university *occasionally* provided institutional support (M = 2.62). In addition, the similarity in the rating of *actual* institutional support among the four faculties can be found to a large extent in items rank (Table 4.18) and sections (Table 4.19).

5.3.2.2. Differences in desired institutional support among faculty

In terms of differences regarding *desired* institutional support (Question 4.2), the one-way ANOVA test results showed that there are statistically significant differences among the four faculities (Table 4.49) As can be seen from the means in Table 4.47, academic staff in three faculty (i.e. Business, Sciences and Engineering) rated institutional support as *highly desired* with means ranging between 4.48 and 4.54. Meanwhile, academic staff in the Humanities faculty expressed less desire for institutional support, rating it as *desired* (M = 4.18). These results are to some extent inconsistent with Sanmamed *et al*. (2014) who report that academic staff in Socio-legal and Humanities disciplines demand professional development programmes more than academic staff in Science, Health and Engineering disciplines.

Again, in terms of ranking of items and sections, the top desired institutional support items (Table 4.47) and sections (Table 4.48) were ranked in a similar way. However, academic staff in the Humanities and Business faculties expressed greater desire for information about e-learning educational opportunities; meanwhile academic staff in the Engineering faculty expressed more desire for TPs in instructional design.

5.3.2.3. Differences between actual and desired institutional support for each faculty

In terms of significant differences between *actual* and *desired* institutional support for each *faculty* (four sub-variables) (Question 6.2) paired t-test results revealed that there were statistically significant differences between *actual* and *desired* institutional support for all four faculties (Table 4.81, 4.84, 4.85 and 4.87). According to the overall means, the biggest gap was reported by academic staff in the Humanities faculty (A.M = 1.97 R = 4, D.M = 4.18 R = 4). Meanwhile, the smallest gap was reported by academic staff in the Engineering faculty (A.M = 2.62 R = 1, D.M = 4.54 R = 1).

5.3.3 Differences between *actual* and *desired* institutional support according to gender

5.3.3.1. Differences in actual institutional support between males and females

In terms of differences between male and female ratings for *actual* institutional support (Question 2.3), t-test results showed that there are statistically significant differences according to gender (Table 4.24). As can be seen from the means in Table 4.22, female academic staff (M = 2.39) rated the presence of *actual* institutional support *significantly* higher than male academic staff (M = 2.23). However, both male and female academic staff reported that their universities *rarely* provided the *required* support. Like the other variables, male and female academic staff ranked the items (Table 4.22) and sections (Table 4.23) in a similar way.

This results can be explained by an female academic staff:

> *For social norms, we utilise VLE more than male academic staff since the academic day in male campuses is more fixable than females thus VLE provide us a very suitable platform to communicate with our students (Huda-Beta University).*

5.3.3.2. Differences in desired institutional support between males and females

In terms of differences in *desired* institutional support according to *gender* (Question 4.3), it can be seen from the means in Table 4.51 and 4.52 that female

academic staff (M = 4.46) seek greater institutional support than male academic staff (M = 4.38). However, there were *no statistical significant differences* between them where both male and female academic staff reported that institutional support is *highly desired*. Like the other variables, male and female academic staff ranked the items and sections in a similar way. One possible explanation of these differences indicated by Sun and Zhang (2006) is that differences between males and females in ICT adoption are expected. A male's decision to adopt ICT is influenced by his perception of ICT's usefulness. Meanwhile, a female's decision is mainly influenced by her perception of ICT's ease of use. Consequently, female academic staff indicate that they require more technical and pedagogical training and support to enable them to increase their skills and enhance their perception of ease of use. Another explanation can be seen from the characteristics of the study sample which revealed that female academic staff utilise the VLE and hold a more positive attitude than male academic staff. This can lead female academic staff to seek more support than male academic staff which enables them to develop their performance in e-learning environments.

5.3.3.3. Differences between actual and desired institutional support for each gender

In terms of significant differences between *actual* and *desired* institutional support for each *gender* (two sub-variables) (Question 6.3), *paired t-test* results revealed that there were statistically significant differences between *actual* and *desired* institutional support for both genders (Table 4.89 and Table 4.91). According to the overall means, the biggest gap between *actual* and *desired* institutional support was reported by male academic staff (A.M = 2.23 R = 2, D.M = 4.38 R = 2). Meanwhile, the smallest gap was reported by female academic staff (A.M = 2.39 R = 1, D.M = 4.46 R = 1).

5.3.4 Differences in *actual* and *desired* institutional support according to the main purpose of using VLE

5.3.4.1. Differences in actual institutional support among different main purpose of using VLE

In terms of differences in *actual* institutional support according to the main purpose of using VLEs (Question 2.4), one-way ANOVA test results showed that there are statistically significant differences among the four different categories of using (Table 4.25). As can be seen from the means in Table 4.25, academic staff who do not use VLE (M = 1.80), who use VLE only for administrative purposes (M = 2.36) and who use VLE only for teaching purposes (M = 2.39) rated *actual* institutional support as *rarely* provided by their universities. Interestingly, academic staff who use VLE for both teaching and administrative purposes reported that their university *occasionally* provided institutional support (M = 2.71) which indicates a positive relationship between academic staff's level of use of VLE and their rating of *actual* support. Likewise, the similarity of rating *actual* institutional support among the academic staff in the four different categories of main purposes of using VLE can be found to a large extent in their ranking of items (Table 4.24) and sections (Table 4.26).

5.3.4.2. Differences in desired institutional support among different main purpose of using VLE

In terms of differences in *desired* institutional support according to the main purpose of using VLEs (Question 4.4), one-way ANOVA test results showed that there are statistically significant differences among the four categories (Table 4.56). As it can be seen from the means in Table 4.54, academic staff in the four categories rated actual support as *highly desired* with means ranging between 4.24 and 4.53. Interestingly, there is a positive relationship between degree of academic staff rating the *desired* institutional support and level of use. This result partly agrees with Carril *et al.* (2013) who state that academic staff's needs for training programmes is positively related with experience in VLEs. Furthermore, prior experience of using VLE affects academic staff decision to adopt the VLE (Al-Harbi & Drew, 2014) which could lead him/her to require more support.

In terms of items and sections, the top five desired institutional support items (Table 4.54) and sections (Table 4.55) were ranked in a similar way. However, academic staff who do not use VLE for teaching purposes seek more information about e-learning opportunities.

5.3.4.3. Differences between actual and desired institutional support for each category of main purpose of using the VLE

In terms of significant differences between *actual* and *desired* institutional support for each sub-variable regarding the main purpose of using VLE (four categories) (Question 6.4) paired t-test results revealed that there were statistically significant differences between *actual* and *desired* institutional support in all four categories (Table 4.93, 4.95, 4.97 and 4.99). According to the overall means, the biggest gap between *actual* and *desired* institutional support was reported by academic staff who do not use VLEs (A.M = 1.80 R = 4, D.M = 4.24 R = 4). Meanwhile, the smallest gap was reported by academic staff who use VLEs for teaching and administrative purposes (A.M = 2.71 R = 1, D.M = 4.53 R = 1).

5.3.5 Differences in *actual* and *desired* institutional support according to academic staff's attitude toward participation in e-learning

5.3.5.1. Differences in actual institutional support among different levels of attitude

In terms of differences in *actual* institutional support according to academic staff's attitude toward participation in e-learning (Question 2.5), one-way ANOVA test results showed statistically significant differences between the three categories (Table 4.31). Interestingly, it can be seen from the results (Table 4.29) that there is a positive relationship between degree of academic staff rating for availability of institutional support and their attitude towards participation in e-learning. In particular, academic staff who intend to participate in e-learning, even without sufficient institutional support, rated the support as *occasionally* provided (M = 2.83) higher than the other categories. Meanwhile, academic staff who stipulated participation in e-learning with sufficient institutional support rated the support as *rarely* provided (M = 2.26). Finally, academic staff who do not use VLEs even if institutional support is provided rated the institutional support as *never* provided (M = 1.62). Like the other previous variables, academic staff in the three different categories ranked the items (Table 4.29) and sections (Table 4.30) in a similar way. This can be explained that academic staff

attitude has a direct effect on ICT adoption (Ajjan & Hartshorne, 2008). Thus, academic staff who do not hold a positive attitude toward e-learning do not adopt the VLEs. Consequently, they do not seek the required support that enables them to use the ICT. King and Boyatt (2014) reported that lack of awareness of and engagement lead to underestimating the support that is provided by the institution.

5.3.5.2. Differences in desired institutional support among different levels of attitude

In terms of differences in *desired* institutional support according to academic staff's attitude toward participation in e-learning (Question 4.5), one Way ANOVA test results showed that there are statistically significant differences between the three categories (Table 4.60). As can be seen from the results (Table 4.58), there is a positive relationship between degree of academic staff rating of *desired* institutional support and their attitude toward participation in e-learning. In particular, academic staff who intend to participate in e-learning seek higher institutional support than those who would not participate. Like the previous variables, academic staff in the three different categories ranked the items (Table 4.58) and sections (Table 4.59) in a similar way. Notably, academic staff who reported they would not participate in e-learning seek more information about e-learning opportunities. This result confirms Dennison (2013) where the "proven effectiveness" is considered as a critical success factor for innovation success in higher education.

5.3.5.3. Differences between actual and desired institutional support for each category of attitude

In terms of significant differences between *actual* and *desired* institutional support for each sub-variable of academic staff's attitude towards participation in e-learning (three sub-variables) (Question 6.5) paired t-test results revealed that there were statistically significant differences between *actual* and *desired* institutional support in all three categories (Table 4.101, 4.103 and 4.105). According to the overall means, the biggest gap between actual and desired institutional support was reported by academic staff who would not participate

even if institutional support was provided (A.M = 1.62 R = 3 , D.M = 4.08 R = 3). Meanwhile, the smallest gap was reported by academic staff who intended to participate in e-learning even if institutional support was not provided (A.M = 2.83 R = 1, D.M = 4.58 R = 1).

5.4. The Institutional Support Model

The study findings revealed considerable gaps between the actual and desired institutional support provided by the universities to motivate academic staff to adopt the VLE. As can be seen from Table 5.1 ,a scale of five shades of green was used to illustrate to what extent institutional support is provided (actual institutional support) and to what extent that institutional support should be provided (desired institutional support).

Based on the literature review and the study findings, an "Institutional Support Model" was proposed to assist universities to allocate their support programmes according to academic staff's needs and preferences. The model suggests forty-four items of support integrated into seven main areas of support: Institutional Support Practices (ten items), Technical Support (six items), Pedagogical Support (six items), Technical Training (six items), Pedagogical Training (six items), Flexibility of Training Programmes (five items) and Institutional Incentives (five items) (Figure 5.2). The model includes the sections and items rated by academic staff as desired or highly desired. According to the section means, academic staff rated all seven sections as highly desired with means ranging between 4.28 and 4.60. The institutional support sections were arranged in the model according to their order in the questionnaire. In terms of the items, academic staff rated seven items as desired and thirty-seven items as highly desired with means ranging between 3.55 and 4.75. The institutional support items were arranged in the model according to their means in a clock-wise direction (for each section).

To maximise the model effectiveness, it should be integrated with Figure 5.1. Such integration helps universities to provide a balanced institutional support that considers universities and academic staff priorities.

Table 5.1.The Gaps Between Actual and Desired Institutional Support

	Institutional Support Items	IS Sec	Actual Institutional Support						IS Sec	Desired Institutional Support					
			Alpha Uni.	Beta Uni.	Gamma Uni.	Delta Uni.	Epsilon Uni.	All		Alpha Uni.	Beta Uni.	Gamma Uni.	Delta Uni.	Epsilon Uni.	All
1	Clarity	SIP	2.50	2.13	3.15	1.87	2.46	2.43	SIP	4.50	4.36	4.42	4.37	4.43	4.42
2	Stability		2.36	1.92	2.61	1.95	2.31	2.23		4.66	4.26	4.70	4.06	4.53	4.46
3	Clarifying Vision		2.90	2.18	3.25	2.30	2.68	2.67		4.31	4.18	4.31	4.13	4.20	4.23
4	Representing		2.28	2.09	2.52	2.03	2.38	2.26		4.41	4.34	4.28	4.31	4.36	4.35
5	Institutional Discussion		2.09	1.80	2.41	1.76	2.00	2.02		4.43	4.35	4.31	4.14	4.44	4.34
6	Keeping Pace		2.09	1.60	2.44	1.64	1.74	1.92		4.84	4.59	4.60	4.59	4.88	4.70
7	Enlightening		2.24	2.04	2.39	1.74	2.15	2.13		4.81	4.55	4.44	4.49	4.89	4.64
8	Barriers		2.08	1.91	2.15	1.70	2.00	1.98		4.77	4.60	4.52	4.62	4.80	4.67
9	Researches' Findings		2.60	2.25	2.80	1.84	2.23	2.37		4.47	4.34	4.51	4.41	4.73	4.48
10	Departments' Role		2.58	2.03	3.02	1.90	2.15	2.36		3.54	3.36	3.71	3.43	3.79	3.55
11	Infrastructure	TS	3.22	2.73	3.54	2.40	2.88	2.98	TS	4.74	4.67	4.63	4.69	4.88	4.72
12	User-friendly VLE		2.89	2.23	3.22	1.99	2.28	2.56		4.69	4.37	4.59	4.59	4.76	4.60
13	Continuous Access		2.68	1.95	2.73	1.67	2.45	2.32		4.61	4.59	4.46	4.65	4.85	4.62
14	24X7 Help Desk		2.08	1.79	2.14	1.58	1.73	1.89		4.66	4.69	4.53	4.78	4.94	4.70
15	Multimedia Production		2.01	1.71	2.40	1.56	1.75	1.90		4.36	4.17	4.36	4.36	4.53	4.35
16	Facilities		3.66	3.09	3.79	2.30	3.18	3.26		4.55	4.37	4.71	4.60	4.86	4.60
17	Instructional Designers	PS	2.22	1.99	2.33	1.65	1.95	2.05	PS	4.15	3.81	4.24	3.79	4.01	4.01
18	Authoring Tools		2.71	2.37	3.17	1.98	2.44	2.55		4.41	4.31	4.17	4.20	4.64	4.34
19	Pedagogical Templates		2.42	2.00	2.73	1.56	2.14	2.20		4.46	4.29	4.24	4.36	4.64	4.39
20	Consultations units		2.11	1.70	2.13	1.59	2.03	1.92		4.45	4.47	4.39	4.26	4.46	4.41
21	Pedagogical Guides		2.14	1.97	2.53	1.74	2.18	2.12		4.51	4.35	4.18	4.40	4.79	4.44
22	Online Communities		2.20	2.09	2.51	1.69	2.14	2.14		4.14	3.87	3.97	4.22	4.53	4.12
23	ICT Training	TT	3.37	3.01	3.63	2.48	3.13	3.15	TT	4.47	4.34	4.24	4.45	4.83	4.45
24	Course Management		3.24	2.86	3.44	2.17	2.79	2.95		4.54	4.39	4.24	4.40	4.86	4.48
25	Content Management		2.84	2.44	3.23	2.06	2.44	2.63		4.57	4.43	4.33	4.43	4.99	4.54
26	Communication Tools		2.55	2.18	2.89	1.99	2.34	2.40		4.31	4.13	4.47	4.20	4.25	4.27
27	Progress Tracking		2.34	1.83	2.64	1.69	2.00	2.12		4.34	4.12	4.43	4.12	4.24	4.25
28	Assessments Skills		2.44	2.11	2.64	1.86	2.19	2.27		4.58	4.43	4.55	4.34	4.59	4.50
29	Instructional Design	PT	2.49	1.92	2.39	1.53	2.16	2.13	PT	4.59	4.53	4.64	4.51	4.68	4.58
30	Reconceptualising Role		2.21	1.76	2.47	1.59	1.98	2.02		4.63	4.47	4.41	4.44	4.65	4.52
31	Interaction		2.33	1.92	2.43	1.63	2.15	2.11		4.41	4.39	4.44	4.47	4.63	4.45
32	Students' Engagement		2.24	1.93	2.40	1.65	2.09	2.08		4.35	4.22	4.33	4.41	4.49	4.35
33	Learner-Centred		2.21	1.86	2.44	1.50	1.90	2.01		4.19	3.93	4.20	3.88	4.29	4.10
34	Blending		2.16	1.78	2.42	1.60	2.00	2.00		4.76	4.43	4.68	4.60	4.96	4.68
35	Need Assessments	TF	1.95	1.54	2.26	1.58	1.86	1.84	TF	4.73	4.50	4.66	4.49	4.90	4.65
36	Means Diversity		2.19	1.83	2.53	1.69	1.96	2.05		4.22	4.03	4.30	4.05	4.41	4.19
37	Forms Diversity		2.20	1.95	2.41	1.66	1.96	2.06		4.34	4.36	4.39	4.40	4.65	4.41
38	Fixable Dates		2.45	2.04	2.40	1.69	2.08	2.16		4.71	4.40	4.56	4.40	4.83	4.58
39	Durations Diversity		2.36	2.16	2.44	1.88	2.16	2.22		4.53	4.37	4.25	4.37	4.68	4.44
40	Monetary Compensation	II	2.44	1.96	2.81	1.93	2.15	2.27	II	4.48	4.45	4.38	4.44	4.66	4.47
41	Workload		1.84	1.47	2.18	1.60	1.64	1.75		4.83	4.71	4.60	4.69	4.89	4.75
42	Appreciating		2.68	2.14	2.92	2.26	2.79	2.55		4.15	4.13	3.86	4.33	4.50	4.18
43	Promotion		2.50	2.02	2.86	2.07	2.46	2.38		3.50	3.68	3.65	3.52	3.71	3.60
44	Travel		3.36	2.85	3.66	2.85	3.03	3.16		4.34	4.32	4.45	4.31	4.56	4.38

Actual Institutional Support	
1.00 - <1.80	Never
1.80 - < 2.60	Rarely
2.60 - < 3.40	Occasionally
3.40 - < 4.20	Frequently
4.20 - 5	Always

Desired Institutional Support	
1.00 - <1.80	Highly undesired
1.80 - < 2.60	Undesired
2.60 - < 3.40	Neutral
3.40 - < 4.20	Desired
4.20 - 5	Highly desired

Figure 5.2. The proposed institutional support model

*** H= Highest ranked in the section.** *** L= Lowest ranked in the section.**

It should be noted that the institutional support model was derived from the study sample (n=518). The academic staff vary in terms of their preferences for institutional support and items according to university, faculty, gender, their main purpose of using the VLE and their attitude towards participation in e-learning. Thus, it could be beneficial if the support provider generated a customised model for each variable or for each sub-variable (Table 5.2).

Table 5.2.Number and Examples of Customised Institutional Support Models (One Variable)

The Study Variables	Number of models for each sub- variable	Example of Generated Customised Model
University	5 Models	An Institutional Support Model for academic staff in Alpha University

Faculty	4 Models	An Institutional Support Model for academic staff in Sciences Faculties (in Saudi Arabia).
Gender	2 Models	An Institutional Support Model for female academic staff (in Saudi Arabia).
Main Purpose of using VLE	4 Models	An Institutional Support Model for academic staff who use VLE for only Teaching (in Saudi Arabia).
Attitude toward Participation in e-learning	3 Models	An Institutional Support Model for academic staff who participate in e-learning only if IS provided.

Also, the study findings could be used to design software to enable the generation of more customised models by integrating two or more sub-variables. To do this, the support providers could build software to categorise their academic staff and create a file for each one according to his/her faculty, gender, main purpose of using the VLE and their attitude toward participation in e-learning. Then, an institutional support model that addresses their preferences could be generated (Table 5.3).

Table 5.3. Number and Examples of Customised Institutional Support Models (More Than One Variable)

Number of Integrated Sub-variables.	The Integrated Sub-variables.	Number of models for each university	Example of Generated Customised Model
2	Faculty*Gender	2*4= 8 Models	Female academic staff in Science Faculty.
	Faculty*Main Purpose	4*4= 16 Models	Academic staff in Science Faculty who use VLE for only Teaching.
	Faculty*Attitude	4*3= 12 Models.	Academic staff in Science Faculty who participate only if institutional support were provided.
	Gender*Main Purpose	2*4= 8 Models	Female academic staff who use VLE for only Teaching.
	Gender*Attitude	2*3= 6 Models	Female academic staff who participate only if institutional support were provided.
	Main Purpose* Attitude	4*3= 12 Models	Academic staff who do not use VLE for and participate only if institutional support were provided.
3	Faculty*Gender*Main Purpose	4*2*4=32 Models	Female academic staff in Science Faculty who use VLE for only Teaching.
	Faculty*Gender* Attitude	4*2*3=24 Models	Female academic staff in Science Faculty who participate only if institutional support were provided.
	Faculty* Main Purpose * Attitude	4*4*3=48 Models	Academic staff in Science Faculty, who do not use VLE for and participate only if institutional support were provided.
	Gender* Main Purpose * Attitude	2*4*3=24 Models	Female academic staff who do not use VLE and participate only if institutional support were provided.
4	Faculty*Gender*Main Purpose*	4*2*4*3= 96 Models	Female academic staff in Science Faculty who do not use VLE and participate only if institutional support were provided.
Number of models for each university		286 models	

However, it should be noted that these customised models could suffer from limitation, as the number of cases in this study declined when the number of

integrated variables increased, which threatens the generalisability of the customised models.

5.5 Summary

This chapter aimed to summarise and discuss the quantitative and qualitative findings of the study. The first part of the chapter discussed actual and desired institutional support and the differences between the two. In this section, the findings confirm earlier studies that report that insufficient institutional support comes with e-learning initiatives and focuses on technical rather than pedagogical aspects (i.e. Orr *et al.*, 2009; Yurdakul *et al.*, 2012). In addition they support those studies that emphasise importance of institutional support in motivating academic staff to participate in e-learning (i.e. McGill *et al*., 2014). Also, the study identified significant gaps between the actual and desired institutional support, consistent with studies which reported such gaps between actual support and best practices (i.e. Phipps and Merisotis, 2000). The finding of actual and desired support identified four types of gap (Figure 5.1). These gaps indicate a variation in academic staff's and universities' priorities (King & Boyatt, 2014).

The second part of this chapter discussed the differences in actual and desired institutional support according to academic staff's university, faculty, gender, main purpose for using VLEs and attitude toward e-learning. The results support those studies which show that differences can occur among universities (i.e. Graham *et al*. 2013), faculties (i.e. Sanmamed *et al*., 2014), gender (Sun & Zhang, 20016), main purpose of using VLE (Al-Harbi & Drew, 2014) and attitude toward participation in e-learning (King and Boyatt, 2014).

Finally, the third part aimed to present a proposed institutional support model based on quantitative data results. The model includes the sections and items that were rated by academic staff as desired or highly desired. In addition, many customised models can be generated from the quantitative results according to the study's variables, sub-variables or by integrating more than a sub-variable.

Chapter Six : Conclusions, recommendation, limitations and future studies.

Chapter Six: Conclusions, recommendation, limitations and future studies.

6.1. Introduction

The study aimed to investigate the perceptions of academic staff in Saudi Arabia regarding the actual and desired institutional support provided by their universities to motivate them to adopt Virtual Learning Environments (VLEs). Also, it attempted to find whether or not there are statistically significant differences between actual and desired institutional support. Furthermore, the study compared the support provided, that which is desired and the gaps between the two, according to the academic staff's university, faculty, gender, their main purposes for using VLEs and their attitudes towards participation in e-learning.

This study was divided into six chapters. Chapter One introduced the study topic stating the problem, objectives, and questions. In Chapter Two, the related literature was reviewed. Then, the research design, instrumentation, sampling, and data collection procedures were clarified in the methodology chapter (Chapter Three). The fourth chapter included a detailed description of the study's sample and the quantitative data results. Chapter Five provided a discussion of the major quantitative results, contextual explanation through the conducted interviews and the relation of these results with the previous literature. This chapter (Chapter Six) includes a summary of the study's objectives, questions, methodology and the main findings. Then, it presents the study's contribution and recommendations, and outlines the study's limitations and potential areas for future studies.

6.2. Summary of the Background and Objectives of the Study

Higher education institutions invest in the integration of ICT into their daily activities (Steven-Long & Crowell, 2010). This investment could enable ICT to address the challenges related to massification, diversification, marketisation and internationalisation of higher education (Hong & Songan, 2011). Furthermore, ICT is adopted due to the assumptions held regarding its role in

enhancing the quality and effectiveness of learning and teaching (Haywood *et al*., 2000; Dool & Kirschner, 2003). However, the literature expresses concerns about the existence of sufficient significant evidence regarding the effectiveness of ICT compared to traditional learning environments (Bernard *et a*l., 2004). Schmid *et al*. (2014) state that focusing on technical rather than pedagogical aspects leads to minimising the impact of ICT initiatives on learning outcomes. One aspect of ignoring the pedagogy is demonstrated by academic staff's tendency to replicate traditional teaching practices and avoid adapting pedagogical, social and managerial practices in e-learning environments (Oliver, 2001; Lai, 2011).

Due to the central role of academic staff in the success of e-learning initiatives (Gannon-Cook *et al*., 2009), studies confirm the importance of institutional commitment by providing the required support to increase their readiness and overcome the barriers that create the sources of resistance (Al-Senaidi *et al*., 2009). Institutional support is required to reduce academic staff's concerns about technical, pedagogical and professional issues (Zhou, 2007). Graham *et al*. (2013) claim that institutional support is an important factor for success in contentious e-learning initiatives. In this study, institutional support is divided into seven aspects: institutional support practices, technical support, pedagogical support, technical training, pedagogical training, flexibility of training programmes and institutional incentives.

Thus, this study aimed to:

- Investigate the perceptions of academic staff in Saudi Arabia regarding the actual institutional support that is provided by their universities to motivate them to adopt VLEs.
- Explore the differences in actual institutional support according to academic staff's university, faculty, gender, their main purpose for using VLE and their attitude toward participation in e-learning.
- Investigate desired institutional support that they would like their universities to provide to motivate them to adopt VLEs.

- Explore the differences in desired institutional support according to academic staff university, faculty, gender, the main purpose for using VLEs and their attitudes toward participation in e-learning.
- Compare between the actual and the desired institutional support.
- In addition, the study aimed to find out if there are statistically significant differences in academic staff's rating of actual and desired institutional support according to their university, faculty, gender, their main purpose for using VLEs and their attitudes toward participation in e-learning.

Six main questions were formulated to achieve these objectives. To answer these questions, mixed methods research was employed. In particular, the study utilised a questionnaire to collect quantitative data, and interviews were conducted to obtain qualitative data. The questionnaire consisted of a cover letter, consent form, demographic questions, forty four institutional support items divided into seven sections and an open question for each section. The questionnaire was distributed in five universities in Saudi Arabia (four faculties in each university). A total of 518 completed questionnaires were analysed, and the results presented in Chapter Four. The questionnaire was followed up by conducting interviews with ten selected academic staff and five e-learning deanship leaders to obtain in-depth contextual data about the institutional support.

6.3. Summary of the Study Findings

The following section summarises the findings of the six main questions of the study.

6.3.1 Question One: From the perceptions of academic staff in Saudi Arabia, to what extent is institutional support provided by their universities to motivate them to adopt VLEs?

This question consists of seven sub-questions: actual institutional support practices, actual technical support, actual pedagogical support, actual technical training, actual pedagogical training, actual flexibility of training programmes and actual institutional incentives.

Academic staff stated that their universities rarely provide the required support (M = 2.29) (Table 4.12). This result concurs with various studies that report lack of institutional support (*e.g*. Al-Senaidi *et al*., 2009). According to academic staff, technical training is provided more than any of the other aspects while pedagogical training is provided less than any other. In terms of the items offered to support e-learning, facilities such as laptops, tablets and computer labratories are provided most, whereas adjusting traditional workload credits is provided least.

6.3.2 Question Two: Are there statistically significant differences in academic staff's perceptions about actual institutional support according to: university, faculty, gender, purpose of using the VLE and attitude towards e-learning?

This question consists of five sub-questions: differences according to the university, faculty, gender, the main purpose of using VLE and attitude toward participation in e-learning.

In terms of significant differences according to the university, only academic staff in Gamma University reported that their university occasionally provides institutional support (M= 2.71), while academic staff in the other four universities reported that institutional support is rarely provided, with means of between 1.85 and 2.46. One-way ANOVA tests revealed statistically significant differences between universities (Table 4.14).

In terms of significant differences according to faculty, only academic staff in the Engineering faculties reported that institutional support is occasionally provided (M= 2.62) (Table 4.18), while academic staff in the other three faculties reported that institutional support is rarely provided with means of between 1.97 and 2.40. One-way ANOVA tests revealed statistically significant differences between faculties (Table 4.20).

In terms of significant differences according to gender, both male and female academic staff reported that institutional support is rarely provided (Table 4.22). However, female academic staff statistically significantly rated actual institutional support higher than male academic staff (Table 4.24).

In terms of significant differences according to the main purpose of using the VLE, there is a positive relationship between the degree of VLE use and academic staff's rating of actual institutional support (The following tables show the means of forty-four items (Table 4.24) and seven sections (Table 4.26) according to responses of academic staff in five universities in Saudi Arabia. The tables classify academic staff into four categories according to their main purposes of using VLE. These categories are administrative purposes only (Adm.), teaching purposes only (Tech.), administrative and teaching purposes (A&T), do not use VLEs (DNU) and other purposes.

Table 4.25). Academic staff who use VLEs for both teaching and administrative purposes reported that institutional support is occasionally provided (M= 2.71), while academic staff in the other categories reported that institutional support is rarely provided with means of between 1.80 and 2.39. One-way ANOVA tests revealed statistically significant differences between different categories of the main purposes of using VLEs (Table 4.27).

In terms of significant differences according to level of attitude toward participation in e-learning, there is a positive relationship between attitude and academic staff's rating of actual institutional support (Table 4.29). Academic staff who intend to participate in e-learning, even with a lack of institutional support, reported that institutional support is occasionally provided (M= 2.83), meanwhile academic staff who stipulated their participation in e-learning with sufficient institutional support reported that support is rarely provided (M=2.26) and academic staff who do not want to participate, even if the required support is provided, reported that their universities never provide the required support (M=1.62). One-way ANOVA tests revealed statistically significant differences between different levels of attitude toward participation in e-learning (Table 4.31).

6.3.3 Question Three: From the perceptions of academic staff in Saudi Arabia, what is the desired institutional support that should be provided by their universities to motivate them to adopt VLEs?

This question consists of seven sub-questions; desired institutional support practices, desired technical support, desired pedagogical support, desired technical training, desired pedagogical training, desired flexibility of training programmes and desired institutional incentives.

Academic staff rated the importance of institutional support as highly desired (M = 4.41) (Table 4.41). This result confirms previous studies which emphasise the importance of institutional support (e.g. McGill *et al*., 2014). According to academic staff, technical support ranked as the highest priority, meanwhile, institutional incentives ranked lowest. In terms of the items, adjusting traditional workload credits is the most desired item, while they express less desire for the departments' role in encouraging them to participate in e-learning.

6.3.4 Question Four: Are there statistically significant differences in academic staff perceptions regarding *desired* institutional support according to university, faculty, gender, the main purpose of using the VLE and attitude towards e-learning?

This question consists of five sub-questions: differences according to university, faculty, gender, the main purpose of using VLE and attitude toward participation in e-learning.

In terms of significant differences according to university, academic staff in the five universities reported that institutional support is highly desired, with means of between 4.31 and 4.59 (Table 4.43). One-way ANOVA tests revealed statistically significant differences between universities (Table 4.45).

In terms of significant differences according to faculty, academic staff in the faculties reported that institutional support is desired (i.e. Humanities) or highly desired (the other three faculties) (Table 4.47). One-way ANOVA tests revealed statistically significant differences between faculties (Table 4.49).

In terms of significant differences according to gender, both male and female academic staff reported that institutional support is highly desired (Table 4.51). Female academic staff rated the desired institutional support higher than male academic staff. However, there were no statistical significant differences (Table 4.53).

In terms of significant differences according to the main purpose of using the VLE, there is a positive relationship between the degree of VLE use and academic staff's rating of desired institutional support. However, academic staff in all four categories reported that institutional support is highly desired, with means of between 4.24 and 4.53 (Table 4.54). One-way ANOVA tests revealed statistically significant differences between different categories of the main purposes of using VLE (Table 4.56).

In terms of significant differences according to level of attitude toward participation in e-learning, there is a positive relationship between attitude and academic staff's rating of the desired institutional support. However, academic staff on all levels of attitude reported that institutional support is desired or highly desired (Table 4.58). One-way ANOVA tests revealed statistically significant differences between different levels of attitude toward participation in e-learning (Table 4.60).

6.3.5 Question Five: Are there statistically significant differences between the actual and the desired institutional support (that which is and that which should be provided to motivate the adoption of VLEs in the perception of the academic staff members of Saudi universities?

This question consists of seven sub-questions; the difference between actual and desired institutional support practices, difference between actual and desired technical support, difference between actual and desired pedagogical support, difference between actual and desired technical training, difference between actual and desired pedagogical training, difference between actual and desired flexibility of training programmes and difference between actual and desired institutional incentives.

Paired t-test results revealed statistically significant differences between the actual and desired institutional support in all items and sections (A.M = 2.29, D.M = 4.41) (Table 4.69 and Table 4.70). In terms of institutional support sections, the biggest gap between actual and desired institutional support sections can be found in pedagogical training (A.M = 2.06, D.M = 4.45). Meanwhile, the smallest gap appears in technical training (A.M = 2.59, D.M = 4.42). These differences

support studies that indicate the gap between policies and practices (Gunn, 2013).

In terms of institutional support items, the biggest gap between actual and desired institutional support appears in adjusting traditional workload credits (A.M = 1.75, D.M = 4.75). Meanwhile, the smallest gap appears in departments' role in encouraging AS to participate in e-learning (M=2.36 and M=3.55) (Figure 4.41).

The gaps between actual and desired institutional support revealed a conflict between academic staff's and universities' priorities. For example, priority conflict occurred when an item was relatively highly provided by the universities and relatively less desired by academic staff, such as clarifying e-learning importance in the university's strategic vision. Another priority conflict occurred where an item was highly desired by academic staff and never provided by the universities such as adjusting traditional workload credits (Figure 5.1).

6.3.6 Question Six: Are there statistically significant differences between the actual and desired institutional support for each sub-variable: university, faculty, gender, purpose of using the VLE and attitude towards e-learning?

This question consists of five sub-questions: difference between actual and desired institutional support for each university, difference between actual and desired institutional for each faculty, difference between actual and desired institutional support for each gender, difference between actual and desired institutional support for each category of the main purpose of using the VLE and difference between actual and desired institutional support for each category attitude towards participation e-learning

In terms of universities, paired t-tests revealed that there are statistically significant differences between the actual and desired institutional support for all five universities. The biggest gap between the actual and desired institutional support was found in Delta University, while the smallest gap was found in Gamma University.

In terms of faculties, paired t-tests revealed that there are statistically significant differences between the actual and desired institutional support for all four faculties. The biggest gap between the actual and desired institutional support was found in the Humanities faculties, while the smallest gap was found in the Engineering faculties.

In terms of gender, paired t-tests revealed that there are statistically significant differences between the actual and desired institutional support for both genders. The biggest gap between the actual and desired institutional support was found in male academic staff responses.

In terms of the main purpose of using VLEs, paired t-tests revealed that there are statistically significant differences between the actual and desired institutional support for all four patterns of using VLEs. The biggest gap between the actual and desired institutional support was found in responses of academic staff who do not use the VLE, while the smallest gap was found in responses of academic staff who use the VLE for both teaching and administrative purposes.

In terms of attitude towards participation in e-learning, paired t-tests revealed that there are statistically significant differences between the actual and desired institutional support for all three levels of attitude. The biggest gap between the actual and desired institutional support was found in the responses of academic staff who do not participate in e-learning even if sufficient institutional support is provided. Meanwhile the smallest gap was found in the responses of academic staff who participate in e-learning even if institutional support is not provided.

6.4 The Study's Contribution

This study may provide theoretical and practical contributions to the higher education and e-learning literature. To achieve the study's objectives, the related literature was reviewed in order to identify the factors that facilitate the adoption of technology among academic staff, and to build a list of reported support that assists academic staff to overcome barriers that prevent them from becoming involved effectively in e-learning initiatives. Then, a two-dimension questionnaire was designed, tested and validated to measure both the actual and desired institutional support provided by universities to motivate their academic

staff to adopt VLEs. This validated tool (the questionnaire) could be utilised in further research or assessment processes conducted by a university to assess actual and/or desired institutional support programmes in seven main sections (institutional support practices, technical support, pedagogical support, technical training, pedagogical training, flexibility of training programmes and institutional incentives). Furthermore, the measurement tool could provide universities with data about the gap between their actual and desired support from the perceptions of academics. Such information would enable universities to re-organise their support plans.

Based on the desired institutional support dimension, an institutional support model was proposed to help e-learning deanship leaders to arrange support programmes to bridge the gap between actual and desired institutional support. The model ranked support items in each section according to their priority from the academic staff's point of view. Furthermore, the model could help to identify the source of conflict in providing support and define the responsibilities of the different departments and deanships then organise the support resources.

The model components were obtained from the responses of academic staff in five universities in Saudi Arabia. However, they vary in terms of academic disciplines (four faculties), gender (two genders), the main purpose of using VLE (four main purposes) and attitude toward participation in e-learning (three levels of attitude). According to academic staff's preferences and their ranking of the support items, each university can customise the required support for academic staff according to the sub-variables (e.g. academic staff in faculty of science) or interaction of more than one sub-variable (two variables) e.g. male academic staff in a faculty of Science, (three variables) e.g. male academic staff in a faculty of science who use VLE for only administrative purposes (four variables) e.g. male academic staff in a faculty of science who use VLE for only administrative purposes and they would participate in e-learning only if institutional support is provided.

6.5 Study Recommendations

The importance of institutional support in encouraging academic staff to participate in e-learning initiatives can be concluded from the literature review. This importance is emphasised by the study's sample, of which 59% (n= 518) stated that they would only participate in e-learning if institutional support were provided. Furthermore, academic staff confirmed the importance of the seven areas (forty-four items) of institutional support by rating all items as desired or highly desired. Thus, based on the study results a list of recommendations is suggested to assess universities, in order to provide the institutional support that is required to motivate academic staff to participate in e-learning.

6.5.1. Developing institutional support practices.

Universities should develop a set of institutional support practices to minimise the gap between the actual and desired practices. As ranked by academic staff, these involve:

- Ensuring that the support provided keeps pace with the growth of e-learning programmes.
- Identifying the barriers to becoming involved in e-learning.
- Enlightening academic staff about educational e-learning opportunities.
- Ensuring that e-learning initiatives are driven by research findings.
- Achieving stability of e-learning strategies.
- Clarifying e-learning strategies.
- Representing academic staff in e-learning planning.
- Encouraging institutional discussion during e-learning initiative phases.
- Clarifying the importance of e-learning in the university's strategic vision.
- Encouraging (departments') academic staff to participate in e-learning.

6.5.2. Providing technical support

Universities should ensure seamless and continuous access to the VLE and consider the gap between the actual and desired technical support. As ranked by the academic staff this should be done by:

- Providing reliable technical infrastructure.
- Running a 24/7 help desk to provide support.

- Ensuring continuous access to the VLE.
- Offering facilities to participate in e-learning (e.g. laptops, tablets, computers labs).
- Offering user-friendly Virtual Learning Environments (VLEs).
- Running units for educational multimedia production.

6.5.3. Providing pedagogical support.

Universities should address the pedagogical issues and facilitate achieving a high level of pedagogical quality for e-learning courses and minimise the gap between actual and desired pedagogical support. As ranked by the academic staff, this could be achieved by:

- Producing guides to increase the pedagogical quality of courses.
- Running pedagogical consultation units.
- Providing prepared pedagogical templates for e-learning courses.
- Providing authoring tools to design e-learning courses.
- Establishing online communities to share e-learning experiences.
- Facilitating cooperation with instructional designers.

6.5.4. Providing technical training

Universities should organise technical training programmes to increase academic staff's technical skills and minimise the gap between actual and desired technical training. As ranked by the academic staff, this could be achieved by:

- Organising TPs to increase course content management skills in the VLE.
- Organising TPs to increase assessment skills in the VLE.
- Organising TPs to increase course management skills in the VLE.
- Organising TPs to enhance using ICT in teaching.
- Organising TPs to increase skills in using communication tools in the VLE.
- Organising TPs to increase students' progress tracking skills in the VLE.

6.5.5. Providing pedagogical training

Universities should organise pedagogical training programmes to increase academic staff's pedagogical knowledge and proficiency and minimise the gap between actual and desired pedagogical training. As ranked by the academic staff, this could be achieved by:

- Organising TPs to guide the best practices in blending face-to-face teaching and e-learning.
- Organising TPs to improve instructional design skills.
- Organising TPs to assist AS reconceptualising of roles in e-learning environments.
- Organising TPs to enhance interaction through e-learning.
- Organising TPs to increase students' engagement through e-learning.
- Organising TPs to improve creating learner-centred learning strategies.

6.5.6. Ensuring the required flexibility in training programmes

Universities should consider the gap between actual and desired diversity and flexibility of training programmes. As ranked by the academic staff, this could be achieved by:

- Designing TPs based on accurate need assessments.
- Organising TPs on fixed dates.
- Ensuring diversity of TPs in terms of duration (short term-long term).
- Ensuring diversity of TPs in terms of form (e.g. one-to-one and team-based).
- Ensuring diversity of TPs in terms of means (e.g. face-to-face and online).

6.5.7. Providing institutional incentives

Universities should legislate policies and procedures to encourage academic staff to participate in e-learning initiatives and minimise the gap between actual and desired institutional incentives. As ranked by the academic staff this could be done by:

- Adjusting traditional workload credits.
- Developing monetary compensation schemes.
- Arranging funded travel to attend e-learning events.
- Appreciating academic staff's participation in e-learning.
- Taking into account academic staff's efforts in promotion processes.

6.5.8. General recommendations

- Ensuring conformity between institutional and academic staff's priorities in terms of the main objectives of e-learning.

- Providing balanced technical and pedagogical e-learning support resources and activities.
- Informing academic staff that the role of the department and promotion procedures are encouraging rather than a source of pressure.
- Taking into account the different institutional support preferences and priorities based on different variables such as the gender of academic staff, the academic discipline (faculties), the main purpose of using VLE and the attitude towards participation in e-learning.
- Allowing an online survey tool to provide continuous assessment of the institutional support programmes and to assess the gap between the actual and desired support.

6.6 The study's limitations and future research

The study presented comprehensive findings of the perceptions of academic staff regarding the actual and desired institutional support in five public universities in Saudi Arabia. However, the research does have certain limitations regarding objectives, instrument, population, sample size and challenges during the data collection process. This section outlines these challenges, and the procedures adopted to minimise the effects that could result from these challenges. Furthermore, this section draws attention to possible areas for future research.

In terms of the study population, this study was carried out in five public universities in Saudi Arabia. Further investigation could be made to investigate academic staff's perceptions in other public universities, universities with different characteristics (e.g. private universities) or in a different cultural context. Furthermore, this study focused on academic staff's perceptions as a primary source to investigate the actual and desired institutional support. Despite the study interviewing deanship leaders (a leader from each university), it would be useful to extend the investigation to include stakeholders from different levels (e.g. heads of departments/faculties, professional development unit leaders, e-learning programmes designers).

In terms of limitation in regards to the study objectives, the study aimed to investigate actual and desired institutional support throughout seven areas

(forty-four items) of institutional support. These support areas and items were identified after a careful and comprehensive review of the related literature. However, it would be useful to adapt unstructured in-depth interviews to explore additional or more detailed support programmes and areas that motivate academic staff to adopt VLEs. Another limitation related to the study objectives is that the study aimed to compare the academic staff's responses according to the university, faculty, gender, the main purposes of using VLEs and attitude towards participation in e-learning. Further research could be conducted to explore the differences in other factors such as academic staff's pedagogical beliefs, academic rank, experience, etc.

In terms of limitation with regards to data collection instruments, there could be concerns about the reliability of self-reporting measures. To encourage the participants to provide honest responses, careful consideration was given to ensuring participants' anonymity. In particular, the cover letter of the questionnaire explained that the study had obtained the required permissions from vice chancellors for postgraduate and research in the university, and the participant's name and identity were not asked during the study. Furthermore, the questionnaire and the interviews commenced by clarifying that participation in the study is voluntary and participants have the right to withdraw at any stage. Further research could adopt further data collection resources such as document analysis.

In terms of limitation regarding the sample, the qualitative data were obtained from only fifteen participants who do not cover the different study sub-variables. However, it should be noted that the aim of the interviews was to obtain in-depth and contextual rather than generalisable data. Further research is required to investigate academic staff in different academic faculties, gender, different main purposes of using VLEs and different levels of attitude toward participation in e-learning, in order to obtain in-depth data from all different types of academic staff.

Further challenges appeared during the data collection stage, the first related to difficulties in data collection from female academic staff. As was clarified earlier, male and female academic staff in Saudi Arabia work in separate campuses.

Heads of department provided assistance in distributing and collecting the questionnaires from the female sections. Despite female academic staff forming nearly thirty-five per cent of the study sample, further investigation could be carried out by a female researcher who has more flexibility to access and communicate with female academic staff. Another challenge that could affect the findings is the concern that only academic staff who participate in e-learning would take part in the study. To avoid this limitation, I utilised a paper-based questionnaire (booklet) instead of online which could help to reach academic staff who do not use ICT.

Another challenge was time limitation as the data were collected in three visits for each university which means there was a period of time between the first and the last visit (nearly 6-8 weeks). It is highly important to find out if there were statistically significant changes in support programmes between the visits. To do this, I reviewed the university and e-learning deanship websites. Further research could adapt the questionnaire to find out if differences in actual institutional support was provided between the two periods. For example, a comparative study to compare the provided institutional support between 2013 and 2016. Further studies are suggested to utilise, validate and refine the institutional support model. In addition, there is a threat to the generalisability of the customised models since the number of cases that form the model decreases according to the number of interacted sub-variables. Thus, studies to investigate the generalisability of customised models are recommended.

6. 7. Summary

The aim of this chapter was to summarise the study background and objectives. It presented a summary of the main findings about the six main questions: actual institutional support; the differences in actual institutional support according to some variables; desired institutional support; differences in desired institutional support according to some variables; differences between actual and desired institutional support; and finally, the differences between actual and desired institutional support for each sub-variable. Then, the chapter illustrated some of the theoretical and practical contributions such as building and validating the

institutional support questionnaire, and proposing an institutional support model that would help e-learning deanship leaders to arrange support programmes. Also, based on the study findings, detailed recommendations were provided to assist universities to provide institutional support in seven main areas.

Finally, the chapter ended by presenting the limitations to the objectives such as population, sample size and some limitations faced during the data collection stage. These highlight areas for future research such as further exploration into the differences that appeared according to the study variables and examination of the generalisability of the proposed institutional support models and customised models.

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Appindex A

Institutional Support for Academic Staff for the Adoption of Virtual Learning Environments (VLEs) in Saudi Arabia.

A questionnaire

Ghanem T. Al-Enazi
School of Education
2013

Dear Academic Staff

This is Ghanem Alenazi a PhD student at university of Durham. Currently, I am carrying out a study titled by **"Institutional Support for Academic Staff for the Adoption of Virtual Learning Environments (VLEs) in Saudi Arabian Universities"**

The study aims to obtain detailed information of academic staff assessment for current and desired institutional support programmes that encourage them to adopt VLEs. Furthermore, it allows identifying the best practices and strategies that adopted by universities to improve technical and pedagogical support and training programmes and incentive schemes.

Where your participation has a great role in achieving the study's aims, I will be very grateful if you take part in the study by answering the questionnaire's questions. Research ethics will be carefully considered. In particular the researcher will follow the "department code of practice on research ethics- University of Durham" which involves ensuring respondents' anonymity.

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CONSENT FORM:

I understand that my participation is voluntary and that I am free to withdraw at any time, without giving reason.

Please tick the box if you agree to take part in the study. ☐

Pre- Sections: The following questions aim to obtain data about participants in the study.

COULD YOU PLEASE TICK THE APPROPIAT BOXES BELOW:

University of ……
Faculty of ……
Gender:
☐ Male. ☐ Female

The main Purpose of using the Virtual Learning Environment (VLE):
- ☐ Administrative purposes (e.g. sending announcements to students)
- ☐ Teaching purposes (e.g. delivering educational content).
- ☐ Both administrative and teaching purposes.
- ☐ I do not use the Virtual Learning Environment.
- ☐ Other Purpose: ……..

Which of the following statements describe your attitude towards participation in e-learning?
- ☐ I participate in e-learning EVEN without sufficient institutional support*.
- ☐ I participate in e-learning ONLY IF sufficient institutional support* were provided.
- ☐ I do not participate in e-learning EVEN IF sufficient institutional support* were provided.

*Institutional support: The procedures that followed by the university to encourage academic staff to participate in e-learning. It includes technical and pedagogical programmes and incentive schemes.

Section 1: Supportive Institutional Practices
The following section evaluates the university behaviour and practices during planning, implementation e-learning initiatives.
Please circle your evaluation of actual and desired supportive Practices.
Actual: 1 Never – 2 Rarely – 3 Occasionally – 4 Frequently – 5 Always provided
Desired: 1 Highly Undesired – 2 Undesired – 3 Neutral – 4 desired– 5 Highly desired

Item No.	Institutional support	Actual/ Desired	1	2	3	4	5
1	My university adopts a clear strategy for e-learning.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
2	My university adopts a stable strategy for e-learning.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
3	My university clarifies the importance of e-learning in its strategic vision.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
4	I believe that the academic staff, are represented when e-learning initiatives are developed.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
5	My university encourages an institutional discussion during e-learning initiatives phases.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
6	I believe that the provided support programmes keep pace with e-learning growth.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5

Section 1 (Continued): Institutional Supportive Practices.

Item No.	Institutional support	Actual/ Desired	1	2	3	4	5
7	My university enlightens me about the e-learning educational opportunities.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
8	I believe that my university strive to identify the barriers of involvement in e-learning.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
9	I believe that e-learning initiative is driven by researches' findings.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
10	I think that my department encourages me to participate in e-learning.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5

An optional question: any further information/comments about the university's practices during planning, implementation e-learning initiatives.

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Section 2: Technical Support

The following section evaluates procedures and approaches that followed by the university to ensure seamless and continuous access to the Virtual Learning Environment (VLE).

Please circle your evaluation of actual and desired technical support.

Actual: 1 Never – 2 Rarely – 3 Occasionally – 4 Frequently – 5 Always provided

Desired: 1 Highly Undesired – 2 Undesired – 3 Neutral – 4 desired– 5 Highly desired

Item No.	Institutional support	Actual/ Desired	1	2	3	4	5
11	My university provides a reliable technical infrastructure (e.g. high speed computers, internet access).	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
12	My university endeavours to ensure a continuous access for academic staff and students.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
13	My university runs a 24X7 help desk to provide support.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
14	My university offers facilities to encourage me to participate in e-learning (e.g. laptops, computers laps).	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
15	My university offers a user-friendly Virtual Learning Environment (VLE).	Actual	1	2	3	4	5
		Desired	1	2	3	4	5

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Section 2 (Continued): Technical Support.

Item No.	Institutional support	Actual/ Desired	1	2	3	4	5
16	My university runs units for educational multimedia production.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5

An optional question: any further information/comments about the university's technical support.

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Section 3: Pedagogical Support

The following section evaluates procedures and approaches that followed by the university to address the pedagogical issues and achieve high level of pedagogical quality for e-learning courses.

- Pedagogy means the method and practice of teaching.

Please circle your evaluation of actual and desired pedagogical support.

Actual: 1 Never – 2 Rarely – 3 Occasionally – 4 Frequently – 5 Always provided

Desired: 1 Highly Undesired – 2 Undesired – 3 Neutral – 4 desired– 5 Highly desired

Item No.	Institutional support	Actual/ Desired	1	2	3	4	5
17	My university facilitate cooperation between me and instructional designers during the development of e-learning courses.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
18	My university provides authoring tools to assist me to design e-learning courses.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
19	My university provides prepared pedagogical templates for e-learning course.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
20	My university runs units to provide consultations in pedagogical issues.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
21	My university produces guidelines to increase the pedagogical quality of e-learning courses.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5

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Section 3 (Continued): Pedagogical Support

Item No.	Institutional support	Actual/ Desired	1	2	3	4	5
22	My university encourages online communities to share e-learning experiences.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5

An optional question: any further information/comments about the university's pedagogical support.

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Section4: Technical Training

The following section evaluates programmes and activities which are organised by the university to increase academic staff technical skills.

Please circle your evaluation of actual and desired technical training.

Actual: 1 Never – 2 Rarely – 3 Occasionally – 4 Frequently – 5 Always provided

Desired: 1 Highly Undesired – 2 Undesired – 3 Neutral – 4 desired– 5 Highly desired

Item No.	Institutional support	Actual/ Desired	1	2	3	4	5
23	My university organises training programmes to enhance my skills in using ICT.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
24	My university organises training programmes to increase my administrative skills through the VLE*.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
25	My university organises training programmes to increase my skills in course content management through the VLE*.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
26	My university organises training programmes to increase my skills in using communication tools in the VLE*.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
27	My university organises training programmes to increase my skills in using students' progress tracking tools in the VLE*.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
28	My university organises training programmes to increase my skills in utilising e-assessments tools in the VLE*.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5

- VLE = Virtual Learning Environment

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Section 4 (Continued): Technical Training

An optional question: any further information/comments about the technical training programmes.

Section 5: Pedagogical Training

The following section evaluates programmes and activities which are organised by the university to increase academic staffs' pedagogical knowledge and proficiency.

Please circle your evaluation of actual and desired pedagogical training.

Actual: 1 Never – 2 Rarely – 3 Occasionally – 4 Frequently – 5 Always provided

Desired: 1 Highly Undesired – 2 Undesired – 3 Neutral – 4 desired– 5 Highly desired

Item No.	Institutional support	Actual/ Desired	1	2	3	4	5
29	My university organises training programmes to improve my instructional design skills.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
30	My university organises training programmes to assist me in reconceptualising my role in e-learing environments.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5

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Section 5 (Continued): Pedagogical Training

Item No.	Institutional support	Actual/ Desired	1	2	3	4	5
31	My university organise training programmes to guide me to the best practices in blending face-to-face teaching and e-learning.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
32	My university organises training programmes to increase my skills in engaging students' through e-learning environments.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
33	My university organises training programmes to increase my skills in enhancing the interaction through e-learning environments.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
34	My university organises training programmes to improve my skills in creating learner-centred learning strategies (e.g. Project-based learning).	Actual	1	2	3	4	5
		Desired	1	2	3	4	5

An optional question: any further information/comments about the pedagogical training programmes.

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Section 6: Training Programmes Flexibility

The following section provides data about the diversity and flexibility of the training programmes.

Please circle your evaluation of actual and desired pedagogical training.

Actual: 1 Never – 2 Rarely – 3 Occasionally – 4 Frequently – 5 Always provided

Desired: 1 Highly Undesired – 2 Undesired – 3 Neutral – 4 desired– 5 Highly desired

Item No.	Institutional support	Actual/ Desired	1	2	3	4	5
35	My university organise training programmes based on an accurate need assessments.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
36	My university organise training programmes in various means (e.g. face-to-face and online).	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
37	My university organise training programmes in various forms (e.g. one-to-one and team-based).	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
38	My university organise training programmes in fixable dates.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
39	My university organise training programmes in fixable periods (short term-long term).	Actual	1	2	3	4	5
		Desired	1	2	3	4	5

An optional question: any further information/comments about the training programmes diversity and flexibility.

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Section 7: Institutional Incentives

The following section evaluates the policies and procedures that legalised by the university to encourage academic staff to participate in e-learning initiatives.

Please circle your evaluation of actual and desired incentives.

Actual: 1 Never – 2 Rarely – 3 Occasionally – 4 Frequently – 5 Always provided

Desired: 1 Highly Undesired – 2 Undesired – 3 Neutral – 4 desired– 5 Highly desired

Item No.	Institutional support	Actual/ Desired	1	2	3	4	5
40	My university develops monetary compensation schemes for academic staff who adopt e-learning.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
41	My workload credits are reduced when I offer e-learning courses.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
42	My university appreciated my efforts when I offer e-learning courses (e.g. certificates, public appreciation…etc.).	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
43	My university takes into account my efforts in the promotion processes.	Actual	1	2	3	4	5
		Desired	1	2	3	4	5
44	My university arranges funded travel to attend e-learning events (e.g. workshops, conferences, etc.)	Actual	1	2	3	4	5
		Desired	1	2	3	4	5

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Section 7 (Continued)

An optional question: any further information/comments about the incentives that offered by the university.

Thank you very much…

I would like to convey my sincere thanks to you for answering the questionnaire. Your respondents will be very helpful and it will assist to achieve the study's aims.

If you would like to receive an electronic copy of the study, please write your email address:

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